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*Meyer, E., and Arnold, L., *Amer. J. Digest. Dis.*, 5:418.

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 30 1944

THE AETIOLOGY OF ERYTHEMA NODOSUM

BY

C. BRUCE PERRY, M.D., F.R.C.P.

Professor of Medicine, University of Bristol

Its Relation to Rheumatism and Heart Disease

The aetiology of erythema nodosum has for long been the subject of discussion and argument. The earliest view that I have been able to trace as to the nature of this common and clear-cut eruption is the one expressed by Bouillaud (1840) in his classical treatise on acute rheumatism. There he states that in view of the frequent occurrence of limb pains with erythema nodosum he considered that it is probably "rheumatic" in nature. Trousseau (1869) in his lectures on clinical medicine endorsed this opinion. However, in 1883 Sir Thomas Barlow paid more critical attention to these pains which occur with erythema nodosum, and, realizing that the development of heart lesions is the most certain criterion of acute rheumatism, stated that "until we get evidence of the initiation of heart disease in an attack or of the liability of persons who suffer from erythema nodosum to subsequent undoubted rheumatism, I think we ought to hesitate before saying that erythema nodosum is closely related to rheumatism, much less convertible with it, although in some respects it runs parallel with it."

Perhaps stimulated by this criticism of Barlow's, Stephen Mackenzie in 1886 attempted to show this association with heart disease, and in fact claimed to have done so. However, the method by which Mackenzie obtained his information and the interpretation which he gave to it are open to grave criticism. It appears fairly certain from Mackenzie's paper that he examined very few of the patients himself. He analysed 108 cases collected from four London hospitals, presumably by registrars, and 19 of these were considered to present signs of heart disease. It should be remembered that at this time any cardiac murmur was accepted as undoubted evidence of heart disease, and from the description given of these cases it is doubtful if many really had rheumatic heart disease. Mackenzie suggested that his findings "justify the inference that erythema nodosum is frequently, if not generally, an expression of rheumatism even when no other definitely rheumatic symptoms are present."

This view was generally accepted in this country, and until comparatively recently has been repeated in most textbooks. From time to time doubt has been thrown on its validity, notably by Gosse (1913), Miller (1921), Walker (1927), and Symes (1928) in this country, Keil (1937) in America, and Feer (1926) and Landau (1927) on the Continent. Both Gosse and Symes point out that, apart from the fact that true carditis is rarely found in erythema nodosum, there are other striking differences between the two diseases. In acute rheumatism males and females are about equally affected, whereas erythema nodosum is far more frequently seen in females. Further, salicylates, which have such a marked effect on the fever and arthritis of acute rheumatism, do not in any way modify the course of erythema nodosum. In addition these observers point out that with a disease so common as acute rheumatism it is hardly surprising that an occasional case of erythema nodosum is seen with pre-existing rheumatic heart disease. Despite these objections the rheumatic theory has been extremely popular, and has been supported by several observers, including Holmes (1937) and de Meuron (1919). The case described by the latter is of considerable interest in view of the crucial point made by Barlow of the initiation of heart disease in an attack of erythema nodosum. A child aged 8½ developed almost certain carditis while under treatment for erythema nodosum, but the patient finally made a complete recovery. However, Wallgren (1938a, 1938b), who has perhaps done more than anyone to establish the relationship between erythema nodosum and tuberculosis, has described cases showing clearly that this association demanded by Barlow and described by de Meuron is not necessarily proof that the erythema nodosum is rheumatic in origin.

For instance, a child aged 10 developed chorea and carditis and recovered with a permanent cardiac lesion. Fifteen months later she was readmitted to hospital, and changes in the electrocardiogram provided evidence of a recurrence of the carditis. The tuberculin reaction was negative, but a week later the temperature, which had been subnormal, became elevated, and a fresh Mantoux reaction was strongly positive and skiagrams showed enlarged hilar glands on one side with a primary focus in the corresponding lung, and she developed erythema nodosum.

It is clear that in this case a child with smouldering rheumatic heart disease developed primary tuberculosis and at the same time erythema nodosum. Despite such possibilities Wallgren has been led to believe that very occasionally erythema nodosum may be due to acute rheumatism, and has described a case in which a child seven days after the onset of erythema nodosum developed arthritis and subsequent carditis which ran a prolonged course.

Question of Specificity

The next phase in the study of the disease was the recognition of small epidemics. This gave rise to the theory, particularly championed by Lendon (1905, 1925), that erythema nodosum is a specific infectious disease. This conception of a specific disease has been supported by Symes (1921), Walker (1927), and others, and recently Keil (1939) has stated his belief in this view. Claims to have isolated a specific causal organism have been made on two occasions—by Rosenow (1915) and by Moon and Strauss (1932)—but these findings have never been confirmed.

Further studies of erythema nodosum soon revealed the fact that it is not infrequent for the eruption to be followed some months later by evidence of tuberculosis such as a pleural effusion or tuberculous meningitis. Those who regard erythema nodosum as a distinct disease *sui generis*, realizing this association, suggest that it predisposes to subsequent tuberculous infection. However, the work of the Scandinavian school of paediatrics, particularly that of Ernberg (1932, 1933) and Wallgren (1926a, 1926b, 1938b), has made it clear that this is not the correct explanation. They have shown that in Scandinavia the vast majority of children with erythema nodosum have strongly positive tuberculin reactions. The conclusion that this finding indicates that there is an intimate association between tubercle and erythema nodosum has been criticized on the grounds that the majority of all patients have a positive tuberculin reaction.

* The Bradshaw Lecture, delivered at the Royal College of Physicians on Nov. 9, 1944.

However, the Scandinavian investigators were dealing with children in whom the expected incidence of a positive tuberculin reaction is much lower. In some cases a tuberculin test performed as the nodes are fading not only gives a positive reaction but results in fever and a recrudescence of the eruption (Arnaud, 1939). These cases are so sensitive to tuberculin that a minimal dose must be used lest severe necrotic reactions are produced. In addition to this very marked tuberculin sensitivity, many cases present radiological evidence of enlargement of the hilar glands and, in a smaller number, shadows of the primary tuberculous lesion—the Ghon focus—may be seen. Finally, Wallgren (1931) and others have been able to demonstrate tubercle bacilli in the resting gastric juice. Thus the close association with recent primary tuberculous infection is firmly established. Pollak (1912) had previously reported similar findings in Austria, and these have been confirmed by many others, including Collis (1932, 1933), Forman and Whitwell (1934), Ford (1936), and Thompson (1938) in this country, Faerber and Boddin (1924) in Germany, Tsukkerman and Rybak (1937) in Russia, Dickey (1930, 1932) in the United States, and the Rascovskys (1938) in the Argentine.

Several investigations have clearly shown that the occasional epidemics of erythema nodosum seen in schools and institutions are in the vast majority of cases due to recent simultaneous infection with the tubercle bacillus. Thus there is no need to postulate a specific infection. Usually, as in the epidemics described by Begg (1932), Landau (1932), and Brandon, Hardman, and Birks (1938), the infection has occurred as the result of the presence of an unsuspected open case of pulmonary tuberculosis in the community. Törnell (1936) has described a local epidemic due to the consumption of milk infected with tubercle bacilli. Stimulated by these findings, many attempts have naturally been made to demonstrate tubercle bacilli in the actual nodes and in the circulating blood. A very few of these have been successful, such as those reported by Hildebrandt (1907), Aguirre and Cervini (1936), and Wallgren and Gnosspelius (1940). These few successes are probably to be explained by the assumption that the cultures were made at a time when there was a tuberculous bacillaemia—a condition which is believed to occur very occasionally in many, if not in all, patients with a primary tuberculous complex.

Tuberculous Theory

As a result of these investigations the theory was put forward that erythema nodosum occurs during the primary tuberculous infection at the time the patient first develops hypersensitivity to tuberculin. Wallgren showed that the eruption coincides with sudden development of this hypersensitivity by tuberculin tests performed in the stage of the preceding fever, when they are negative, and in the same child immediately after the eruption, when they are strongly positive. Observations such as that made by Punch (1941) confirm these views. He found that in a number of student nurses undergoing regular tuberculin-testing the change from a negative to a positive tuberculin reaction was marked by the development of erythema nodosum. Wallgren has also demonstrated that when a second attack of erythema nodosum occurs after such illnesses as measles it may be due to the fact that the infection temporarily depresses or even abolishes tuberculin sensitivity, which returns suddenly two or three weeks later when the second attack of erythema nodosum occurs. This view of the aetiology of the disease has gained wide acceptance in Scandinavia and on the Continent generally; also in the United States. In this country it has made slow headway against the rheumatic theory.

Even Wallgren (1926b) himself has had to admit that every patient with erythema nodosum does not show a positive tuberculin reaction, and has reported 3 cases with negative reactions in a series of 135 patients and 5% in a larger series of 800 cases (Wallgren, 1938b). Similar findings are reported by Landorf (1935), who found 24 such cases in a series of 650, and by Ernberg and Gabinus (1938), who describe a group of 34 cases occurring in Stockholm in six months, of which 20 were tuberculin-negative. All of the latter were seen in a short period of just under two months. Further evidence that all cases of erythema nodosum cannot be explained on the tuberculous theory is provided by the occurrence of the eruption in patients known to have been infected with tubercle years before and who show evidence of this old infection in the form of calcified hilar glands (Lemming, 1935). It thus became clear that even if many cases of erythema nodosum were causally related to tuberculosis this could not be the explanation of all.

An Alternative "Rheumatic" Theory

Collis (1932) shed new light on the problem by showing that in some of the tuberculin-negative cases the patients exhibited at the time of the eruption very marked skin sensitivity to streptococcal nucleoprotein. This has been confirmed by Coburn and Moore (1936), who were able to show exacerbations of the disease following intracutaneous injections of nucleoprotein of haemolytic streptococci, exactly as may happen after tuberculin tests in the supposedly tuberculous cases. These observations fall into line with the occasional development of erythema nodosum after haemolytic streptococcal infections such as scarlet fever (Moro, 1935; Móritz, 1934). Actually this appears to be a very rare occurrence, and Dr. Peters (1944), medical superintendent of the fever hospital at Bristol, has seen only one example in the last 2,346 cases of scarlet fever. It must be remembered that Wallgren (1938a) has demonstrated clearly that many of the cases which apparently follow a sore throat are associated with a change in tuberculin sensitivity. However, this streptococcal theory offers an alternative explanation of the apparently "rheumatic" cases. It is well known that relapses of acute rheumatism are often preceded by an acute haemolytic streptococcal pharyngitis. It is surely possible that the same infection may both produce erythema nodosum and initiate an attack of acute rheumatism without the two latter conditions being more closely related. One occasionally finds cases of acute rheumatism which show in addition some evidence of acute nephritis. Here the explanation would appear to be similar—that the streptococcal infection gives rise to two different sequelae. In the patient described by Wallgren as the one "rheumatic case" seen in 800 attacks of erythema nodosum the rash developed seven days before any manifestation of acute rheumatism was present.

"Valley Fever"

For many years there has been recognized in certain parts of California and Arizona a chronic granuloma-forming disease which has a particularly high incidence in the San Joaquin Valley. The granulomas may involve any part of the body, and the clinical and histological picture closely resembles that of tuberculosis. The causal organism is a fungus, the *Coccidioides immitis*. In the same areas occurs an acute and relatively mild disease with respiratory symptoms, fever, malaise, and sweating, known as "valley fever." In 1937 Dickson proved that this "valley fever" was the early stage of coccidioidomycosis. The vast majority of the patients afflicted with valley fever make a fairly rapid and complete recovery. In a small number, however, the granulomatous lesions develop years afterwards. In the acute stage radiology reveals enlargement of the hilar glands on one or both sides, and, rarely, pulmonary cavitation or pleural effusion occurs as a sequel. About 5% of the patients with valley fever show typical erythema nodosum, known locally as "the bumps." Further, patients with this disease develop marked and lasting skin sensitivity to coccidioidin, and mass skin-test surveys have shown that there must be many subclinical primary infections (Smith, 1940; Goldstein and Louie, 1943; Goldstein and McDonald, 1944). Thus we have a disease closely similar in all stages to tuberculosis, characterized by a relatively mild primary stage, with subsequent blood dissemination, and, in some patients only, the development of more serious granulomas; and a disease which in certain people gives rise to erythema nodosum.

Association with Sarcoidosis

Erythema nodosum is occasionally met with as an episode in the prolonged clinical histories of some cases of sarcoidosis. Reports of large numbers of patients with this condition are uncommon, and it is difficult to determine with any certainty how often this happens. Kerley (1942, 1943) has drawn attention to the *x*-ray findings in 37 adults with erythema nodosum. These cases were mainly drawn from the Services, and their ages ranged from 18 to 33. In 28 there was radiological evidence of pulmonary pathology. These changes were of

main types—glandular enlargement, usually bilateral, and a coarse reticular striation in the lungs very much like the picture of early silicosis. Kerley believes that the latter indicates some lymphatic obstruction. In 17 these changes occurred together, in 8 enlarged glands only were found, and in 3 the pulmonary changes appeared alone. Two patients subsequently developed pleural effusion, and in one this was bilateral—an unusual occurrence with tuberculous effusion. The *x*-ray changes which Kerley describes are reminiscent of those found in nodosum, and in four of his cases was able to demonstrate calcified hilar glands, thus proving that the primary tuberculous infection had occurred years before and could not be related to the erythema nodosum.

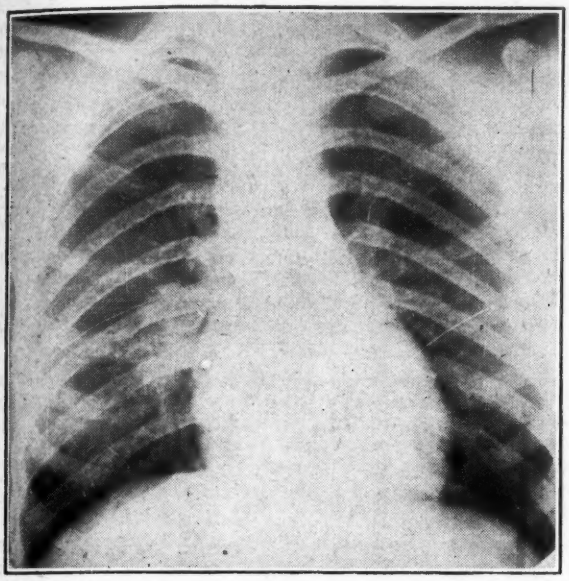

FIG. 1.—Skiagram of a girl aged 11 taken two days after the onset of erythema nodosum, showing enlarged right hilar glands.

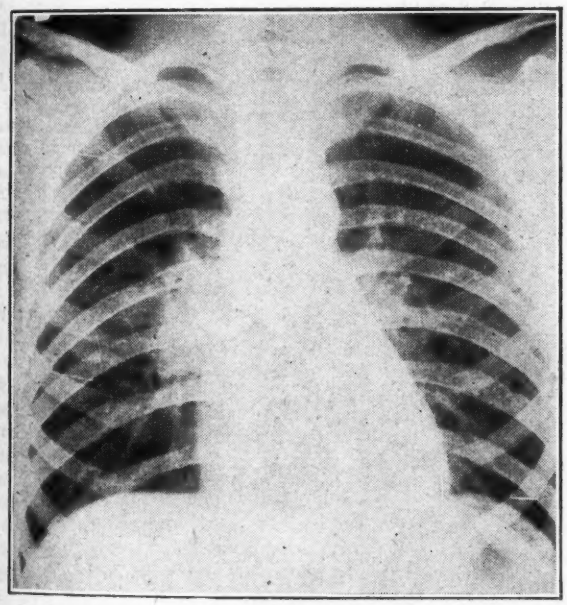

FIG. 2.—Skiagram of a boy aged 8 taken six months after an attack of erythema nodosum, showing enlarged right hilar glands and a primary focus in the right lung.

Sulphonamide Rash

The use of the various sulphonamides is not infrequently complicated by rashes of diverse types, including occasionally an eruption indistinguishable clinically and histologically from

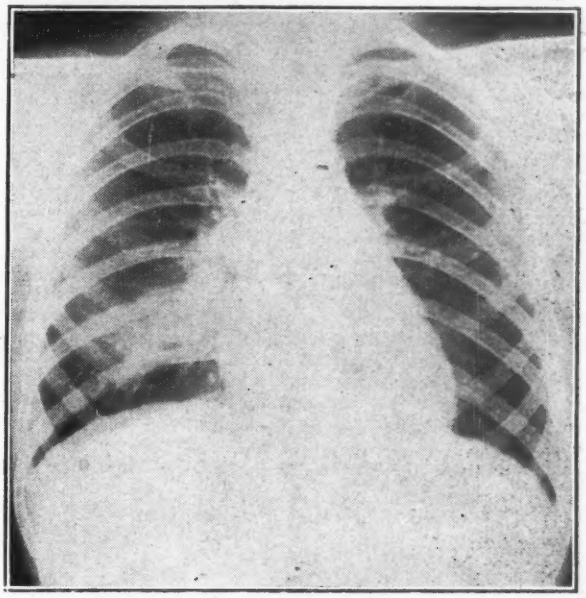

FIG. 3.—Skiagram of a girl aged 6 taken two months after an attack of erythema nodosum, showing enlargement of the right hilar glands and a "flare" spreading out to and involving the primary focus.

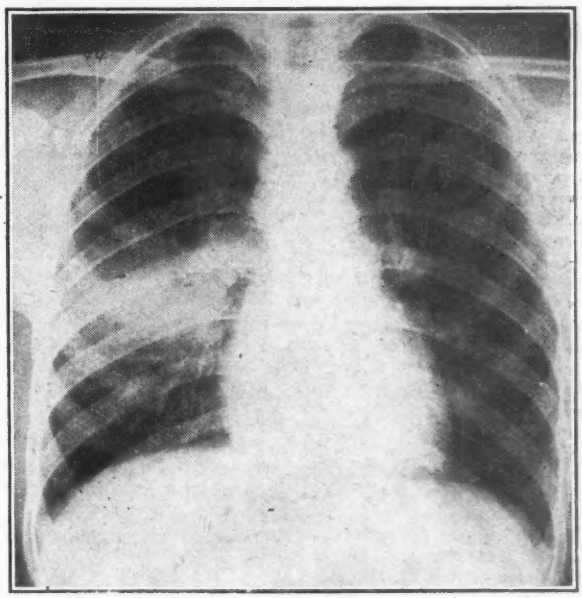

FIG. 4.—Skiagram of a girl aged 11 taken three weeks after an attack of erythema nodosum, showing a picture like that of "epituberculosis."

occidioidomycosis, but no fungi were present in the sputum of any of the cases. Tuberculin reactions were not done as a routine. Kerley considers that the pulmonary shadows are very much like those seen in sarcoidosis, and in two of the cases skin lesions excised after the acute rash had subsided showed the histological characteristics of sarcoid. In addition to changes in the mediastinal glands, five showed enlarged glands in the neck, and one in the axilla. Kerley is extremely doubtful of the validity of the tuberculous theory of erythema

erythema nodosum. The only difference is that the eruption fades away rapidly when the drug is stopped (Haviland and Long, 1940; Combes and Cañizares, 1941; Jersild and Iversen, 1942). Sulphathiazole is the member of the sulphonamide group which most often causes erythema nodosum, but there is at least one case reported due to sulphanilamide (Loveman and Simon, 1940). It is generally considered that these rashes are due to sensitization, and Shaffer, Lentz, and McGuire (1943), from a study of sulphathiazole sensitivity, report that

passive transfer tests with the Prausnitz-Küstner technique give positive delayed reactions to sulphathiazole similar to the tuberculin reaction as well as the early wheal type of reaction.

Occasionally erythema nodosum has been reported complicating various other infections, such as in the case of gonorrhoeal septicaemia of Bakst, Foley, and Lamb (1935). However, such cases are so infrequent as to make it impossible to draw any definite conclusion from them.

Series of Cases showing Aetiological Diversity

In view of the diversity of conditions which may apparently cause this eruption it was decided to study a series of cases in an attempt to determine the aetiology in each. In all, 112 cases were investigated. Of these, 38 were males and 74 females. This confirms the well-known preponderance of females. The cases were tuberculin-tested by the Mantoux reaction. Only the reaction to 0.01 mg. of old tuberculin was tested in view of the fact that if the theory already described is correct and the case is tuberculous in origin the patient must be extremely sensitive to tuberculin. Any patient not reacting to this dose of tuberculin was regarded as giving a negative tuberculin reaction for the purpose of this study. A few cases were also tested with streptococcal nucleoprotein, kindly provided by Collis, but insufficient material was available to test all. In addition all cases were *x*-rayed and have been followed up to the present time. Of these, 61 gave a strongly positive Mantoux reaction and 51 a negative reaction to 0.01 mg. of tuberculin. In 21 of the 61 the *x* rays showed enlarged hilar shadows on one side (Fig. 1); some of these also showed a shadow of the primary lesion (Figs. 2 and 3), and others a picture similar to that of epituberculosis (Fig. 4). One case had a typical tuberculous cervical adenitis, and one patient died later of tuberculous peritonitis. Four cases subsequently developed a pleural effusion, and two of these showed normal skiagrams at the time of the eruption.

For instance, a nurse aged 23 developed erythema nodosum on March 1. Her Mantoux reaction was strongly positive, but a skiagram of the chest showed no abnormality. Her sister, also a nurse, had had erythema nodosum some years ago and subsequently developed a pleural effusion. This patient was kept in bed for six weeks, when her temperature and erythrocyte sedimentation rate were normal. She was discharged to continue rest at home. Fourteen weeks after the onset she developed a pleural effusion. This cleared up with further rest, and subsequent skiagrams show no sign of any lung lesion.

A further case with a normal skiagram subsequently developed miliary tuberculosis. This patient was a boy aged 2 years and 2 months who developed erythema nodosum in Feb., 1941. He had a strongly positive tuberculin reaction, but *x* rays showed no abnormality in his chest. A month later he was not so well, and was admitted to hospital. He did not improve, and in May skiagrams showed miliary tuberculosis of the lungs. He improved for a time but developed pertussis. After this he went steadily downhill and died of tuberculous meningitis eleven months after the onset. Post-mortem examination revealed generalized tuberculosis with caseous cervical, hilar, and mesenteric glands. He thus appeared to have suffered at least three "primary" infections. A brother died of pulmonary tuberculosis a month before the patient was taken ill.

All these cases were considered to be definitely tuberculous, making a total of 32 in this category. Those with strongly positive Mantoux reactions but no other evidence of tuberculosis were regarded as probably tuberculous, and numbered 28. It must be remembered that by no means all enlarged hilar glands produce definitely enlarged hilar shadows. Two of the cases later developing pleural effusion, the patient dying of tuberculous peritonitis, and the boy developing miliary tuberculosis—all of whom had normal chest skiagrams at the time of the eruption—would have fallen into this group but for subsequent events. Seventeen cases were tested with Collis's streptococcal nucleoprotein; 15 gave a positive reaction, but one was also positive to tuberculin and has been classified as doubtful, and 2 were negative both to tuberculin and to streptococcal nucleoprotein. Thus of the total 112, 32 (28%) were certainly tuberculous, 28 (25%) were probably tuberculous, and 51 (45%) were definitely not tuberculous.

However, when these cases are analysed further into age groups two striking facts emerge. The sex incidence (Table I), which in the total group was roughly 2 females to 1 male, becomes much altered. Under 15 there were 36 boys and 31 girls, whereas over this age there were 43 females and only 2 males. There were 67 cases under the age of 15, and of these 29 (43%) were definitely tuberculous and 20 (29%) probably tuberculous, whereas of the 45 patients over 15 only 3 (6%) were definitely tuberculous and 8 (17%) probably tuberculous. So that in 72% of cases of erythema nodosum in children of school age or under the eruption probably marked the development of primary tuberculosis. The importance of this in treatment and tuberculous-case finding is so obvious as to need no comment.

TABLE I.— *Age and Sex Incidence*

Age	Males	Females	Total
0–15 years	36	31	67
Over 15 years	2	43	45
All ages	38	74	112

TABLE II.—*Relationship to Tuberculosis*

Age	Certainly Tuberculous: Mantoux +ve, *X*-ray +ve, and/or Subsequent Tuberculous Illness	Probably Tuberculous: Mantoux +ve. No other Evidence of Tuberculosis	Not Tuberculous: Mantoux −ve	Doubtful: Mantoux +ve; Streptococcal Nucleoprotein +ve	Total
0–15 ..	29 (43%)	20 (29%)	17 (25%)	1	67
Over 15	3 (6%)	8 (17%)	34 (76%)	—	45
All ages	32 (28%)	28 (25%)	51 (45%)	1	112

Turning now to the relationship to acute rheumatism, 10 of the 112 cases had had this condition previously; in four of them the heart was normal at the time of the erythema nodosum. In only two of these was there any evidence of a rheumatic relapse. In both the rheumatism appeared to follow the erythema nodosum and not to occur simultaneously. This supports the theory, already put forward, that while the two diseases both follow a streptococcal infection they are not necessarily the same. Five, including the two having a rheumatic relapse, gave negative tuberculin reactions and four of these were sensitive to streptococcal nucleoprotein. Of the remaining 5, two were certainly tuberculous, as judged by skiagrams and Mantoux findings. The other three had positive tuberculin reactions but no other evidence of tuberculosis. None of them showed any relapse. One boy with a strongly positive Mantoux reaction developed acute rheumatism and carditis two years after his erythema nodosum. There was no recurrence of the erythema.

These cases thus offer little support to the theory that erythema nodosum is a manifestation of acute rheumatism. In fact, it is comparatively rare in rheumatic patients, since these 10 were the only ones found in over 1,000 patients with acute rheumatism.

A family history of erythema nodosum was elicited in 10 cases. In one family three children with erythema nodosum which was definitely tuberculous led to the discovery of a tuberculous father. A history of a previous attack was given by 13 patients. All of these were females and all were tuberculin-negative, but the only four cases tested were sensitive to streptococcal nucleoprotein.

Eleven patients gave a clear-cut history of an acute pharyngitis preceding the erythema nodosum. Of these, four had had previous attacks, and all but two had a negative tuberculin reaction.

Conclusions

These findings thus agree with those of other workers, and we are forced to conclude that, as Arborelius (1928), Spink (1937), and others have claimed, erythema nodosum must be regarded as the result of a non-specific reaction to a variety of infections or toxic agents and that it is not a specific disease. However, it is clear that these agents can and do give rise to the syndrome only in patients predisposed by their constitutional make-up, since everyone who suffers a primary tuberculous infection—and that is probably all of us by the time we are 30—develops hypersensitivity to tuberculin, yet only a small proportion show erythema nodosum. In the recent Prophit Trust survey carried out by this College Daniels (1944) found that in 5 of 284 nurses developing a positive tuberculin reaction the change was marked by the occurrence of erythema nodosum. Similarly with coccidioidomycosis, only about 1% of the patients develop erythema nodosum although all become sensitive to coccidioidin. The frequency with which other members of the family suffer from erythema nodosum probably offers the clue to this part of the problem and shows that the diathesis is partly, at any rate, inherited. The sex difference in the incidence of the eruption after the age of puberty suggests that endocrine factors also contribute to this predisposition.

Sir Thomas Lewis (1944) has recently drawn attention to the way in which the great importance attached to diagnosis

present-day medical practice tends to limit investigation to assigning a name to a clinical picture. "These names applied to disease," he says, "come to assume the importance of specific entities, whereas they are for the most part no more than insecure and therefore temporary conceptions." Further, with the development of the science of bacteriology we have tended to take the view that one disease is likely to have one cause. This review of the aetiology of erythema nodosum shows how false this conception is and how necessary it is to search beyond a mere diagnosis if we are to understand a disease or syndrome. Erythema nodosum presents a clinical picture as clear-cut as many other so-called diseases, yet, as we have seen, it may be produced by several different and quite unrelated infections. Further studies may well show that the same holds true for many disorders at present accepted as specific diseases.

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Physiotherapy is a profession in which the blind practitioner excels. Indeed, absence of sight seems to be an asset rather than a handicap in this work, allowing undisturbed concentration and providing an exceptional sense of touch. For many years the National Institute for the Blind (224, Great Portland Street, London, W.1) has been paying special attention to the training of suitable blind men and women for this profession, and the annual report for 1943–4 refers encouragingly to those who have qualified. During the war they have been giving valuable service both in military hospitals and in private practice. In the past year all previous records were broken at the Institute's evening clinic and the Eichholz Clinic.

STUDIES ON HEPATIC DYSFUNCTION

III. CARBON TETRACHLORIDE POISONING: SULPHUR METABOLISM

BY

J. BEATTIE, M.D., D.Sc.
Bernhard Baron Research Professor, R.C.S.

P. H. HERBERT, B.A.
Leverhulme Scholar, R.C.S.

C. WECHTEL, M.D.
Capt., U.S. Army Medical Corps

AND

C. W. STEELE, M.D.
Major, U.S. Army Medical Corps

(From a U.S. Military Hospital, E.T.O., and the Bernhard Baron Research Laboratories, Royal College of Surgeons of England)

In a previous article (Beattie *et al.*, 1944) we described a case of carbon tetrachloride poisoning in which the predominating clinical findings were those of acute hepatic dysfunction. Administration of methionine and casein digest intravenously was followed by a rapid recovery, and a slight relapse which occurred about 26 hours later showed a similar rapid response to methionine given orally.

In addition to the routine investigations an attempt was made to follow the mode of action of the methionine by estimating the nitrogen and sulphur balance of the patient and by determining the partition of the urinary sulphur between the oxidized (total sulphate) and unoxidized (neutral) fractions. It was this last determination which yielded the most interesting results. We had expected to find either that the methionine sulphur would be retained in the body or that it would be excreted as sulphate. In fact, we found that the major part of it was excreted in the neutral sulphur fraction. We therefore concluded tentatively that the effect of the carbon tetrachloride had been to interfere with the normal metabolism of methionine by the liver and that this was the intimate cause of the liver disturbance.

Such a conclusion assumes that a normal person would not have excreted such a large quantity of neutral sulphur following a similar dose of methionine. It also presupposes that our patient would have metabolized the methionine normally had he not previously ingested carbon tetrachloride. With regard to the first supposition we had only indirect evidence available at the time. Subsequent work on normal individuals has shown, however, that, although the excretion of neutral sulphur is somewhat higher than is suggested by the work of other investigators on orally administered methionine, the greater part of the sulphur contained in 10 g. of methionine administered intravenously is excreted as sulphate within 24 hours.

The second point could only be determined by investigating the metabolism of methionine in our patient under normal conditions and comparing the findings with those previously obtained when he was suffering from the toxic effects of the carbon tetrachloride. Accordingly it was decided at the time of the original incident to readmit the patient for investigation after six months had elapsed, at which time he might be assumed free from any residual liver damage. This has now been done, and the results obtained will be presented in this communication.

The patient was readmitted on April 1, 1944. In the interval he had been on full duty with his squadron, had made more than 40 operational flights over enemy-occupied territory, often at high altitudes, and had remained in excellent health throughout. Physical examination on readmission revealed no abnormalities. His liver was not palpable during normal respiration, and when felt on deep inspiration was not tender. The serum bilirubin level was 0.8 mg. per 100 c.cm. Various tests of kidney function which were performed gave values within the normal range.

The diet of the patient was planned so as to give a daily protein intake of about 100 g. All urine was collected, and the output of nitrogen, creatine, creatinine, total sulphur, and total sulphate was determined. On the second day in hospital he was infused with a solution containing 10 g. of methionine.

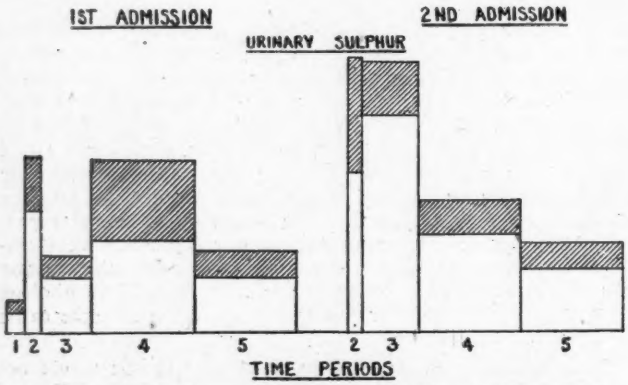
This amount of methionine contains as much sulphur as was present in the original methionine–casein digest infusion. It was given at the same rate. There was no reaction.

In Table I the urinary output of total sulphur and total sulphate during the original incident is given in rather more detail than in our previous communication. The figures for

TABLE I

1st Admission					2nd Admission				
Period	Time in Hours	Excretion of Sulphur in Grammes			Period	Time in Hours	Excretion of Sulphur in Grammes		
		Total Sulphur	Total Sulphate	Neutral Sulphur			Total Sulphur	Total Sulphate	Neutral Sulphur
I	3½	0·062	0·041	0·021	I	—	—	—	—
II	3½	0·410	0·250	0·160	II	4	0·626	0·373	0·253
III	12	0·532	0·380	0·142	III	13½	2·113	1·696	0·417
IV	24	2·650	1·300	1·350	IV	24	1·747	1·269	0·478
V	24	1·010	0·770	0·240	V	24	1·218	0·850	0·368
VI	24	1·080	0·980	0·100	VI	24	1·143	0·856	0·287

comparable periods during the second admission are also included. In order to make comparison easy the same figures are given in the form of a histogram (see Fig.). The infusion in each case was started at the beginning of Period II, and extended over 3 hours.



Urinary sulphur excretion. Neutral sulphur is indicated by hatched areas, sulphate sulphur by clear areas. Periods are as described in text. The vertical scale is proportional to the hourly excretion of each urinary sulphur component.

Before direct comparison is made between the two sets of figures there are several points which require discussion. First, the normal excretion of neutral sulphur on the last four days of the original experiment never exceeded 100 mg. (Period V on the graph is misleading, as the patient received more methionine by mouth on that day.) On the last two days of the second admission (Periods V and VI) it was 368 and 287 mg. We believe that this apparent discrepancy is due to a difference in the methods of total sulphur determination used on the two occasions. On the first occasion oxidation was with nitric and perchloric acids (Pirie, 1932); on the second occasion oxidation by fusion with sodium peroxide (Folin, 1905) was used. We have found the latter method to give higher figures than the former with certain urines. This is particularly marked in periods following methionine administration. It should be borne in mind during the subsequent discussion that the tendency is therefore to obtain slightly higher figures for neutral sulphur during the second investigation.

Secondly, the neutral sulphur excretion is definitely increased after the second infusion, and this increase cannot be accounted for as a simple spill-over of methionine in the urine. Results we have obtained by the direct analysis of methionine in urine strongly suggest that not more than 1.5 g. of methionine is lost in this way even when 10 g. is given in as short a period as 45 minutes. As our patient received his methionine over the comparatively long period of 3 hours we are forced to conclude that about twice as much excess neutral sulphur is excreted as can be accounted for as methionine. The apparent discrepancy between our findings and those of Medes (1937), who concluded that there was no significant rise in the neutral sulphur after giving 3.2 g. methionine by mouth, may be due to the difference in dosage, route of administration, or possibly methods of determining total sulphur.

The third point requiring consideration concerns the very definite lag in the excretion of neutral sulphur after the first infusion. There was no rise during the 12 hours following the infusion (Period III), but during the subsequent 24 hours (Period IV) the greater part of the methionine sulphur was excreted as neutral sulphur. There are two possible explanations of this lag in the excretion of neutral sulphur. The methionine might have been retained, presumably in the liver, for a period of at least 12 hours, during which time it was performing some unusual function. At the end of this time excretion of the breakdown products as neutral sulphur began. It is of interest to note that it was precisely during this 12-hour period that the liver was retracting rapidly and the clinical condition of the patient undergoing marked improvement, as we have reported previously. The other explanation is that put forward by Stewart and O'Brien (1944). They suggested that the toxic effect of carbon tetrachloride on the kidney produced some degree of retention during the early period, and that during a subsequent diuresis the accumulated metabolic products were washed out in the following 24 hours. If there had been kidney damage during the earlier period some evidence of this should have been present. In fact, the secretion rate was normal (53 ml./hour for a night specimen), the concentration of sulphate was normal, and the level of non-protein nitrogen in the blood was not suggestive of retention. The evidence, incomplete though it is, is more suggestive of normal than of abnormal function. The major point in our thesis, however, was that the absolute amount of neutral sulphur excreted was abnormally high. It seems unlikely that kidney damage, by causing retention of methionine within the body, could diminish the rate of oxidation of methionine sulphur by the liver. One would have expected that the liver, having the methionine available for a longer period than usual, would have been more rather than less successful in its endeavour to oxidize the methionine sulphur. However, in order to avoid this point we propose to compare our findings on the two occasions over the whole period of about 40 hours from the beginning of the infusion.

In Table II the average hourly excretion of total sulphate and sulphur is given for the pre-transfusion period, for the subsequent period of about 40 hours, and for the two following

TABLE II

1st Admission					2nd Admission				
Period	Time in Hours	Average Hourly Excretion			Period	Time in Hours	Average Hourly Excretion		
		Total Sulphur	Total Sulphate	Neutral Sulphur			Total Sulphur	Total Sulphate	Neutral Sulphur
I	3½	0·0177	0·0117	0·0060	I	—	—	—	—
II–IV	39½	0·0910	0·0489	0·0418	II–IV	41½	0·1081	0·0805	0·0277
V	24	0·0421	0·0321	0·0100	V	24	0·0508	0·0354	0·0153
VI	24	0·0450	0·0408	0·0047	VI	24	0·0476	0·0357	0·0120

periods of 24 hours each. It is clear from an examination of this table, together with the accompanying diagram, that after the first infusion there was a marked rise in the neutral sulphur excretion and a much smaller rise in the sulphate excretion. After the second infusion these findings were reversed—by far the greater rise occurring in the sulphate excretion. In order to determine quantitatively the way in which the methionine sulphur was excreted it is necessary to assess the rate at which the two sulphur fractions would have been excreted had no extra methionine been given. Unfortunately it is not possible to determine the basal rate of sulphate excretion on either occasion. With regard to the first occasion, the picture is complicated by the fact that the patient had been starved for 24 hours previous to the infusion and subsequently received further methionine by mouth. On the second occasion it was intended that the patient's intake of sulphur in the food should be maintained at a steady known level, but in fact this was impracticable at the time he was readmitted to hospital. However, we have been primarily concerned with the excretion of neutral sulphur, which is relatively unaffected by dietary factors. From Table I it is seen that basal neutral sulphur excretion during the first investigation

was *not greater* than 0.006 g./hour (the excretion of 0.01 in Period V is probably due to the fact that the patient was given further methionine on this day) and during the second investigation was *not less* than 0.012 g./hour. Calculating from these figures, we can determine the percentage of methionine sulphur recovered as neutral sulphur after the two infusions. These figures are given in Table III.

TABLE III

	Excretion of Neutral Sulphur in g./hour			Time in Hours	Total Excess Neutral Sulphur	Methionine Sulphur recovered as Neutral Sulphur
	Basal Rate	Total Rate	Difference			
1st admission	0·006	0·0418	0·0358	39½	1·412	66% (minimum)
2nd admission	0·012	0·0277	0·0157	41½	0·620	29% (maximum)

We have no evidence as to the compound or compounds which constituted this excess neutral sulphur on the first occasion. We have given above our reasons for believing that not more than 0.322 g. was present as methionine on either occasion, and that it was probably less after the first infusion. On the second occasion we determined the urinary amino-nitrogen output using the ninhydrin method (van Slyke *et al.*, 1943). These figures, together with the total nitrogen output, are given in Table IV. It will be seen that for the pre-transfusion period and the two final 24-hour periods the

TABLE IV

Urinary Nitrogen Excretion: 2nd Admission

Period	Time in Hours	Urine Volume (ml.)	Total Nitrogen (g.)	Amino-nitrogen –Nitrogen (mg./litre)	Total Amino-nitrogen –Nitrogen (g.)
I	—	—	—	88·5	—
II	4	590	15·6	196·4	0·116
III	13½	1,440		149·8	0·216
IV	24	2,180	18·4	106·2	0·232
V	24	2,075	17·1	77·9	0·162
VI	24	1,510	14·7	99·1	0·150

concentration of amino-nitrogen averaged 88 mg./litre urine. If we assume that the basal excretion rate in the post-transfusion period approximated to this figure, we find an excretion of excess amino-nitrogen = 0.194 g., which would be sufficient to account for 0.443 g. sulphur in the form of an amino-acid containing equivalent weights of nitrogen and sulphur. If we subtract 0.322 g. sulphur (the maximum amount attributed to the methionine present in the urine) from 0.620 (the total excess neutral sulphur) we find 0.298 g. neutral sulphur not accounted for. It is clear, therefore, that this excess sulphur could be accounted for as an amino-acid. In view of the many uncontrolled factors influencing the excretion of amino-nitrogen, these figures cannot be regarded as more than suggestive.

Summary

A case of acute carbon tetrachloride poisoning reported previously has been reinvestigated six months after the original incident.

The patient showed no signs of impaired liver or kidney function.

The excretion of neutral sulphur after an infusion of methionine was markedly different from that observed after a similar infusion given at the time of the original incident.

The possible significance of this finding has been discussed.

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Recently we published a note on the aims of the medical society founded by the L.C.C. medical staff. Nearly 300 of the Council's medical staff applied for foundation membership, including doctors now in the Services. Sir Allen Daley is the president and Mr. G. F. Stebbing has been nominated as chairman. Full membership is open to whole-time L.C.C. medical officers; associate membership is open to medical practitioners attached to the L.C.C. medical service; and honorary membership is open, among others, to the medical members of the Council. The inaugural meeting is to be held at the County Hall on Thursday, Jan. 11, at 4.30 p.m. The acting hon. secretary is Dr. Eli Davis, St. Andrew's Hospital, Bow, E.3.

A CRITIQUE OF GASTROSCOPY

BY

NORMAN C. TANNER, F.R.C.S.

Surgical Specialist, L.C.C. St. James' Hospital

Now, just over a decade since the introduction of the flexible gastroscope and safer gastroscopy, it is well worth while that users of the instrument should review their cases and consider how this method compares with other means of examination. Although most reports by experienced users are enthusiastic, different clinics give conflicting views as to the extent of its value; but this is to be expected when one considers how the nature of the gastric disease encountered in an urban municipal hospital varies from that encountered, for example, in a clinic catering for private well-to-do patients or the patients of a military hospital. In the clinic at St. James' Hospital the percentage of dyspeptics who eventually prove to have a chronic gastric ulcer is so high that one feels that the instrument has become indispensable.

It is easy but often unwise to develop a predilection for a particular mode of examination or therapy, and so, in order to discover if my partiality is warranted, I have recently reviewed the gastroscopic examinations carried out personally from the beginning of this war until December, 1943, at this clinic.

In the first 950 cases the Schindler instrument was used, and thereafter the Hermon Taylor model. I do not propose to discuss the relative merits of the instruments beyond confirming the advantages originally claimed by Mr. Hermon Taylor, though I would suggest it requires a little more skill in the passage and is less suitable for mild degrees of kyphosis. It has an advantage I believe not originally claimed—namely, that introduction through deformed or distorted stomachs is often possible under vision. It cannot be said to have entirely abolished the "blind" area, but it has done much to diminish it.

In the period under review the number of gastroscopic examinations was 2,200, and these were made on 1,730 patients. The 470 repeat examinations were mainly to follow the progress of the ulcers while under medical treatment, to confirm healing, to observe relapses, and, less frequently, to confirm doubtful diagnoses, particularly that of carcinoma.

Examination of the 1,730 patients showed, or subsequently showed, the following conditions:

Gastric ulcer alone	589
Gastric and duodenal ulcer	39
Gastric ulcer and diverticulum	3
Post-operative stomach	77
Gastric carcinoma	101
Gastritis	267
Mucosal tumours	7
Submucosal tumours	8
Gastric diverticulum alone	2
Extragastric tumour	3
Multiple telangiectases of stomach	1
Gastric urticaria	1
Volvulus of stomach	1
Duodenal ulcer	296
Duodenal diverticulum	4
Cirrhosis of liver	3
Functional or extragastric dyspepsia with normal stomach	262
Failed or incomplete examination	66

Gastric Ulcer

Although there has been a tendency to regard the gastroscope as an instrument chiefly for the diagnosis of gastritis and rarities, in our own clinic its main usage is in the diagnosis and observation of gastric ulcer. Of the 631 gastric ulcers no fewer than 159 were diagnosed by gastroscopy alone and had apparently normal radiographs—the latter examinations being carried out by a number of expert radiologists. There are several reasons for the difficulty in the diagnosis of many of these gastric ulcers. In the first place, acute ulcers may be too shallow to retain barium, or, particularly after a haemorrhage, the base may be filled with blood-clot, which prevents the entry of barium to the crater. Again, if one waits till the patient is in good general condition after a haemorrhage before subjecting him to investigation, the ulcer may be healed and the scar be missed radiologically. In such cases gastroscopy may show a well-marked cicatrix, rendering the cause of the bleeding evident; though it is on the whole more

satisfactory to make early examinations, as recommended by Avery Jones.

At times large ulcers, particularly in the neighbourhood of the angulus, may be missed by radiology, and this is a part usually well viewed gastroscopically. Multiple ulcers may give rise to puzzling pictures, which are often elucidated by gastroscopy. Two or more concomitant chronic gastric ulcers were seen on 36 occasions in this series.

Gastric endoscopy sheds a good deal of light on the progress of the ulcer during healing, and is undoubtedly the most reliable guide in assessing the efficiency or otherwise of healing. One's first impression is of the strong tendency of most gastric ulcers to heal when treated in hospital, whether the patients are on ulcer diet and alkalization or just taking the normal hospital dietary with no drugs. The early days of treatment usually show the greatest change—the ulcer diminishing in size by contraction of the base so that the edges are brought closer together and radiating folds appear as a result of the smaller circumference. At the same time the ulcer becomes more shallow. The ulcer area also diminishes by new epithelial ingrowth from the edges, but this does not account for so much as the base contraction. The combination of these factors will result in healing in 3 to 6 weeks in the acute and subacute and in some of the moderate-sized chronic ulcers. Many, however, become progressively slower in healing. There appears to be a limit to the contraction of the base—particularly if there is complete penetration—and the epithelial growth is inadequate and too feeble to bridge a wide or deep gap. The ulcer may remain stationary for a long time in this condition, and may be equally resistant to any of the generally accepted methods of medical treatment. Eventually some of these very chronic ulcers will heal, though a few of the patients get discouraged or are worried about finances and discharge themselves. The latter usually reappear within the year with the ulcer in its original state. The importance of this laggardly healing of the centre of the ulcer is that we may observe the unhealed condition several weeks after radiology has shown it apparently healed. On three occasions I found the ulcer reduced to under a quarter of its original size in 3 weeks and yet unhealed in 12 weeks.

There are sources of error in diagnosis of healing even by gastroscopy. A mucous bubble hiding a defect in epithelization may persist in the centre of a slightly depressed cicatrix, and it may be impossible to brush it away (though with the Taylor instrument most such impediments may be rubbed off with its tip). On one occasion I found that scar contractions so approximated the edge of a deeply penetrating ulcer that a rather oblique view gave an appearance of healing. Subsequent operation showed that this was not the case—in fact, there was still complete penetration.

Duodenal Ulceration

Where a duodenal ulcer is seen radiologically, and the diagnosis is consistent with the symptoms complained of, gastroscopy is not indicated. Where radiology is uncertain or the symptoms are suggestive of a gastric lesion, particularly in the fifth decade and upward, gastroscopy may be of help. Thirty-nine of my duodenal ulcer cases also had a gastric ulcer, and even carcinoma was seen on two occasions when duodenal ulcer was suspected radiologically.

No direct evidence of duodenal ulcer can be obtained from gastroscopy. Indirect evidence may be obtained—the typical thick folds and thick mucosa with prominent areae gastricae are almost always present; in long-standing cases a thinning of the mucosa may have taken place, and then the ulcer has usually become quiescent. With the onset of severe pylorospasm and obstruction varying degrees of gastritis—from simple oedema congestion and catarrh with great prominence of the areae gastricae to severe inflammatory changes with superficial ulceration, mucosal scarring, and retained food debris in long-standing cases—may be present. Such cases may give an appearance of polypoidal hypertrophy of the mucosa, though I believe the condition to be usually an oedema of an already thick mucosa.

Carcinoma of the Stomach

It has rightly been pointed out that even direct visualization of an excised ulcer of the stomach may not provide the truth as to its innocence or malignancy. Nevertheless one is rarely in doubt after gastroscopic visualization, because vitality appears to accentuate the differences, and where such doubt exists a second inspection after ten days' medical treatment usually gives the clue. Certainly it is well worth while to gastroscope every ulcer that is not healing rapidly under medical management. Certain superficial types of carcinoma may be missed radiologically (though tribute must be paid to the great skill with which early mucosal infiltrative carcinomas may be diagnosed by mucosal relief technique (Gutmann, Bertrand, and Péristiany)). In this series were diagnosed 13 subsequently confirmed carcinomas that had been considered innocent or were not diagnosed radiologically.

In the laudable desire of the radiologist not to miss a carcinoma he may diagnose carcinoma tentatively. In 53 cases in this series the area in doubt was clearly seen by gastroscope, so that carcinoma could be excluded—and thus in the majority a needless laparotomy was avoided. None of these negative diagnoses were later refuted. It is true that repeat radiology might have provided the solution in a certain number of these cases (though many had had such repeats), but gastroscopy may give a clear view of an area radiologically difficult. In this connexion it is well to point out the great danger of making a negative diagnosis without the most careful and clear scrutiny of the suspected area. A carcinoma of the pyloric canal may only differ from a normal pylorus in appearance by stiffness, fixity, or deformity of the folds, or by absence of the normal intragastric prolapse of its mucosa with each contraction. I should have been deceived by two such cases but for the fact that the radiologist had particularly directed my attention to this part.

Although ulcers in the blind areas of the stomach may be missed, carcinomas are less likely to be overlooked, as they tend to project into the gastric lumen, and in the early stages have less extragastric fixation than chronic ulcers.

Post-operative Stomach

It is rather difficult to tabulate the results of examining the post-operative stomach: 77 such cases were examined in the series—some for purposes of investigation rather than for suspicion of recurring ulcer. After gastrectomy the whole gastric pouch and stoma are usually well seen. After gastro-jejunostomy a large part or all of the stoma is usually seen, and in fact may be entered with the gastroscope, but occasionally it is obstinately invisible. In the absence of gastro-jejunal ulcer the stoma usually remains open and clear for inspection, and jejunal peristalsis may be studied. In ulcer of the gastric side of the stoma one can usually see the lesion. With ulcers on the jejunal side, oedema and spasm of the stoma may obscure the lesion or it may be beyond the range of visibility, but occasionally a jejunal ulcer is seen. As this field is notably difficult for radiology, gastroscopy is always advisable if anastomotic ulceration is suspected.

Gastritis

The diagnosis of gastritis remains difficult, and it is hard to say where the normal ends and the abnormal begins. Among the abnormalities it is usually not easy to decide whether a certain lesion is likely to be the cause of certain symptoms, because one so often sees a symptomless gastritis or a gastritis in which another adequate cause for the symptoms is found.

Broadly speaking, the gastric mucosa may be divided into three categories: thick, when the areae gastricae are clearly seen, and usually in the absence of gastritis associated with high secretion (H. Rodgers); medium; and thin, when the areae gastricae cannot be recognized or the mucosa may be so thin that the submucosal vessels may be seen through it—and this is usually associated with low acidity. On top of these types inflammatory, ulcerative, or neoplastic lesions may be set. The inflammatory lesions are most readily observed in the thick mucosa, where a vigorous reaction of oedema congestion and catarrhal exudate with excess of mucus is clearly seen, often after mild stimuli and often apparently symptomless, in association with lesions which are subsequently found to be unassociated with the stomach. To my mind minor degrees of such changes may be no more worthy to be called to account for the symptoms, and may have no more significance, than

coated tongue. With these inflamed lesions the areae gastricae might become even more pronounced, and a close-up oblique view may give a distorted appearance of hypertrophy—the "hypertrophic gastritis" as commonly diagnosed, but which I prefer to call "gastritis in a thick mucosa." Irregularity of the areae gastricae or of the mucosa may denote superficial scarring and suggest chronicity. True multiple inflammatory polypoidal changes in a thick mucosa I believe to be rare, and I saw only two unequivocal cases in the series. Gastritis in a thick mucosa was seen in 49 cases, 22 of them severe.

With medium thick mucosa, 155 cases showed inflammatory changes, only four of them severe enough to be a likely cause of symptoms.

In thin mucosa—particularly if associated with anaemia, as they often are—inflammatory changes are less easy to observe, though the atrophy may be patchy and the patches of incomplete atrophy show the inflammatory lesion most clearly. The atrophy seen in pernicious anaemia appears in some cases to be reversible, and with thickening of the mucosa inflammation becomes more evident. In this series there were 63 cases of gastritis on a thin or atrophic mucosa, 39 of them severe. In the neighbourhood of scars of chronic ulcers the mucosa may be stretched and thinned, and may simulate a patch of atrophy. In 27 cases of gastritis there were associated erosions, many of them being seen after gastro-duodenal haemorrhage.

Simple Tumours

Two cases with mucosal polypi were seen in association with a thick mucosa. Polypi in a thin mucosa were more common and well seen on five occasions, and appeared to be degenerative neoplastic change. In one case the lesion was associated with a carcinoma. Only one was operated on, and histology showed multiple myoadenomata. Submucosal tumours were seen on eight occasions (usually in association with a thick mucosa—six thick, two thin) and may be distinguished from mucosal tumours by the "bridging fold" sign of Schindler. Only one of these was operated on—in association with a duodenal ulcer—and it proved to be ectopic pancreatic tissue.

Extragastric swellings or tumours are occasionally seen, but require much experience of the normal to notice them, and accurate diagnosis is usually impossible.

Rarities

Gastric diverticula were observed on five occasions; sometimes the whole mucous lining of the diverticulum could be seen, and in one of them a pool of mucus was present inside. In three of these cases a chronic gastric ulcer was also present, and seemed to account for the symptoms. Multiple telangiectases were seen in a patient who suffered from repeated haematemesis and who had similar lesions in the tongue and mouth. I was impressed by the resemblance of these lesions to superficial traumatic ecchymoses, and felt that such lesions could be easily misdiagnosed. An unusual gastric appearance in a case of papular urticaria and a (?) gumma scar completed the abnormalities. No tuberculous lesion was recognized.

Value of the Gastroscope to the Surgeon

Enough has been said to indicate the aid the method gives to radiologist and physician. As a pre-operative investigation it is most useful. The combination of gastroscopic visualization with external examination of the ulcer at laparotomy usually leaves little doubt as to diagnosis, and thereby unnecessarily extensive and radical gastrectomies may be avoided in simple cases. In cases of carcinoma no evidence of extramucosal spread can usually be obtained, but one gets help from observation of the type and situation—particularly the nearness of the growth to the cardia.

Some lesions may be difficult to diagnose at laparotomy: in 2 cases of gastric diverticulum (one not in these series), 2 cases of mucosal polypi, and 1 case of gastric carcinoma the lesion was missed by the surgeon at laparotomy, despite the fact that in each case he had directed his attention particularly to the stomach. Gastroscopy showed each of these lesions easily.

In view of the usually direct relationship between thickness of the gastric mucosa and its acid-pepsin-secretion potentialities, some help may be gained when considering whether radical surgery—gastrectomy or palliative gastro-jejunostomy—will be more advisable. Patients with a thick mucosa are usually more prone to recurrent ulceration.

Gastroscopic Fallacies

The pressure of the hot lamp on the mucosa for a few moments causes a patch of blotchy congestion and outpouring of mucus over a small area. Rubbing the mucosa with the instrument produces a superficial ecchymosis and may cause bleeding. The gastric suction employed to empty the stomach before the examination may cause a superficial erosion or a superficial bruise coloured with altered blood: the so-called pigment spot may result from the suction employed in fractional test-meal examination some days beforehand.

One does not know to what extent certain changes such as congestion, increased motility, spasm, or increased secretion may result from the presence of the foreign body—the gastroscope—in the stomach.

I have shown already, in connexion with the different lesions, how gastroscopy is subject to all the diagnostic difficulties encountered in trying to diagnose a lesion by surface visualization (which oftentimes is oblique or incomplete), and how these may be partly overcome by repeat examination to observe progress or retrogression.

Failed Examination

In 66 instances the examination was unsuccessful by reason of failure to enter the stomach, or was incomplete in so far as it failed to show the area which it was desired to examine. In 13 of these, carcinoma of the oesophagus or fundus of the stomach was subsequently found to be present. An enlarged malignant or cirrhotic liver may impede entry to the stomach. An apparent lengthening of the oesophagus in the kyphotic may result in kinking of its lower end and prevent entry. The gastroscope has no prograde vision, and any impediment to its smooth progress must be treated gently; one should have no hesitation in abandoning the examination pending oesophagoscopy or radiological examination of the oesophagus or cardiac end of the stomach.

Conclusion

These observations are not intended to make comparisons between gastroscopy and radiology: the methods are, of course, complementary. They are intended more to show the place that gastroscopy is making for itself in medicine. As a single means of examination radiology is undoubtedly superior, and it preceded gastroscopy in nearly every case in this series.

My own conviction that gastroscopy is soundly established as a routine investigation is based on the following facts:

1. It increases the percentage of correct diagnosis of gastric lesions.
2. It ensures that the results of medical treatment of gastric ulceration are accurately gauged.
3. It is increasing our knowledge of the physiological variations of the stomach, though there is still much observation required to demarcate the boundaries between physiological change and disease.
4. It aids the surgeon not only by increasing the accuracy of pre-operative diagnosis but by giving some indication whether radical or conservative surgery is more advisable.
5. It reduces the number of exploratory or unnecessary laparotomies.
6. It has shed light on general diseases in which the gastric mucosa is involved, particularly certain of the anaemias, and may eventually shed light on their aetiology.

PHARMACISTS AND PATENT MEDICINES

The Pharmaceutical Society of Great Britain has decided to ask the Minister of Health to supervise the advertising of certain proprietary medicines and medical and surgical appliances "so that the public can be protected against this type of misrepresentation." The fears of the public are exploited, the Society states, and its credulity traded upon to the extent of £20,000,000 a year. Supervision is already exercised in New Zealand and the United States, where the American Medical Association registers approved products after examining them chemically, pharmacologically, and, if necessary, clinically, at a cost of £10,000 a year. A department of the Ministry of Health, the Society urges, is necessary so that no advertising shall be put before the public inconsistent with the spirit of the White Paper under which it is proposed to spend millions of pounds a year with the idea of keeping the people fit.

BISMUTH THERAPY IN JAUNDICE DURING ANTISYPHILITIC TREATMENT

BY

J. R. FORBES, M.D., M.R.C.P.

Surg. Lieut.-Cmdr., R.N.V.R.; Medical Specialist

Considerable attention has been paid of late to the problem of hepatic jaundice arising during the course of antisyphilitic therapy. For some time it has been the prevalent belief that such "therapy jaundice" is in the main due to toxic liver damage by the metals employed, with a superadded precipitating factor of infective nature. Recent work, however, has cast doubt upon this dual hypothesis, the toxic factor being thrust more and more into the background. Dible and McMichael (1943) have shown that the histological appearances of the hepatic lesions are not like those produced by arsenic poisoning in experimental animals, but are similar to those found in serum jaundice or epidemic hepatitis. They further point out that the incidence and severity of therapy jaundice bear no relation to the total quantity of arsenic or bismuth given. Tnese and other observations appear to minimize, though they cannot be said to eliminate entirely, the toxic factor in the aetiology of such jaundice. The problem still awaits final solution.

Until the question of aetiology is settled, the further question of whether or not to continue antisyphilitic therapy during the jaundice cannot be satisfactorily answered. Stokes and Ruedemann (1920) claimed to have continued arsenotherapy in 11 patients "without apparent ill effect." Wile and Sams (1934) reported 5 similar cases in which arsenic was continued; one died, and the other four recovered normally. The commoner and more cautious practice is, however, to discontinue arsenic and to continue with bismuth alone in order to avoid a gap in treatment. But even bismuth is not without toxic potentialities, and it is evident that, although this metal in therapeutic doses may play only a very minor part in producing damage in a normal liver, its action on an already weakened organ might be of considerable importance. One's clinical impression is that bismuth does not appear to cause harm to jaundiced patients. But clinical impressions are not always reliable. An attempt to test the validity of this one is embodied in the investigation described below.

Method

One method of approaching the problem seemed to be to determine whether the continuance of bismuth injections materially delayed recovery of hepatic function in cases of therapy jaundice. Soffer (1937) claimed that it did not, but the figures he quotes to prove his assertion are not sufficiently detailed to allow of statistical analysis, and are therefore valueless. In the present experiment two groups of sufferers were compared. One group received intramuscular injections of 2 c.cm. of bicreol (3 g. of bismuth metal) weekly throughout the illness; the other did not. Arsenotherapy was not given to either group while jaundiced, nor for some time afterwards. Care was taken that in all other respects the groups were strictly comparable. All patients were young (in the third or fourth decade) and otherwise fit Naval or Air Force ratings; they were selected at random from the routine admissions to a Royal Naval hospital in England between Jan. and April, 1944; they were all early syphilitics, though at different stages of treatment; they had all previously received both arsenic and bismuth therapy; and in no case were other aetiological factors for the jaundice present. All patients were kept in bed till their liver function was normal, and received no other form of treatment except a low-fat diet. So far as could be ascertained, no case, after recovery, relapsed during the period over which the experiment was conducted. Four patients had had one previous attack of jaundice during the course of their treatment, but the attack had cleared up at least two months before the onset of the present illness.

The recovery period in each case was recorded. It was assessed as the number of days from the onset of symptoms to complete recovery of normal liver function, as measured by the oral Quick hippuric-acid-excretion test (Kolmer and Boerner, 1941). "Complete" recovery of function was assumed to have occurred when the test gave excretion values of at least 2.55 g. of benzoic acid (3.75 g. hippuric acid). Such tests were performed bi-weekly, so that the recorded recovery periods are only approximate. This does not matter, however, as in comparing the two groups a difference in mean recovery periods of a day or two would not be clinically significant. One was seeking a difference of a week or more.

(It is of interest to note that in most cases return of the liver function test to normal coincided closely with disappearance of clinical jaundice. In a few cases, however, a trace of icterus lingered in the conjunctivae for two or three days after the test had reached normal.)

Results

Ten patients received bismuth therapy during the course of their illness. Their recovery periods (in days) were: 14, 17, 21, 24, 26, 30, 31, 38, 40, 44 (mean, 28.5 days). Eleven patients received no bismuth during the course of their illness. Their recovery periods (in days) were: 19, 20, 25, 30, 34, 36, 37, 41, 41, 47, 48 (mean, 34.4 days).

The "bismuth" group therefore recovered on the whole slightly more rapidly than the "non-bismuth" group, but the difference between the two means is statistically quite non-significant. However, on the basis of the above experiment, the odds against the hypothesis that the administration of bismuth retards recovery by as much as seven days are about 100 to 1. Thus, owing to the fortunate circumstance that the (non-significant) difference between the groups happens to be in favour of the "bismuth" group, even so small a series as this provides good evidence that any retardation of recovery by bismuth must be very slight, and doubtless for practical purposes negligible.

Comment

It is not, of course, claimed that this experiment is conclusive. One obvious criticism is that a normal Quick test does not necessarily indicate a completely normal liver function. Furthermore, the functional reserves of the liver are great, and a damaged liver may still function apparently quite normally. There is thus no guarantee that the "bismuth" group did not in reality suffer more destruction of liver tissue and more permanent (though undetectable) damage than the "non-bismuth" group. There is, on the other hand, equally no evidence that it did. A study of the relapse rates of two similar groups might prove illuminating, but such an investigation would be fraught (as indeed is the whole subject) with difficulty. Nevertheless, the result of the present experiment does tend to confirm one's clinical impression that the continuation of bismuth injections is not significantly harmful in the presence of jaundice during antisyphilitic treatment.

Summary

A study has been made of the recovery of liver function (as judged by the Quick hippuric-acid-excretion test) in two groups of patients suffering from jaundice during antisyphilitic therapy. One group was treated throughout the illness with bismuth; the other received no antisyphilitic treatment.

The result of the experiment strongly suggests that bismuth does not significantly retard recovery of liver function in such patients.

Such a result supports the view that bismuth therapy should be continued in the presence of jaundice of this nature.

I am indebted to Surg. Rear-Admiral H. St. C. Colson, C.B.E., R.N., for permission to publish this report, and to Surg. Cmdr. J. A. Fraser Roberts, R.N.V.R., for help in the statistical analysis of results.

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T. C. Jaipply (*Amer. J. med. Sci.*, 1943, **206**, 453), who reports an illustrative case with a review of the literature, states that aneurysm of the coelic artery are rare, only 32 cases confirmed by necropsy having been recorded. The present case was that of a negro aged 44: the signs and symptoms were those of acute cholecystitis. The case, which was one of saccular aneurysm, was complicated by bleeding into the intestinal canal by way of the pancreatic duct.

SEVERE ABDOMINAL CRUSH INJURY

A STUDY OF THE MECHANICS IN AN EXTREME CASE

BY

D. H. LEES, M.B., F.R.C.S.Ed.

Major, R.A.M.C.

Trauma in the case here reported took the form of a powerful antero-posterior crushing force applied to the left thoraco-abdominal region. The important grosser effects were as follows: Rupture of the spleen in the hilar region; complete transverse tearing of the jejunum, with partial detachment from the mesentery; severe laceration of the pancreas; bruising of the transverse colon; and detachment of the greater omentum over practically the whole length of the transverse colon. Yet, with early and carefully graded resuscitation, and with minimal and speedy operative intervention, this patient recovered.

As an extreme example of recovery from gross injury the case has considerable interest. It is, however, as an illustration of the mechanics of injury that I report it. This latter question, with its bearing on operative treatment, is discussed below.

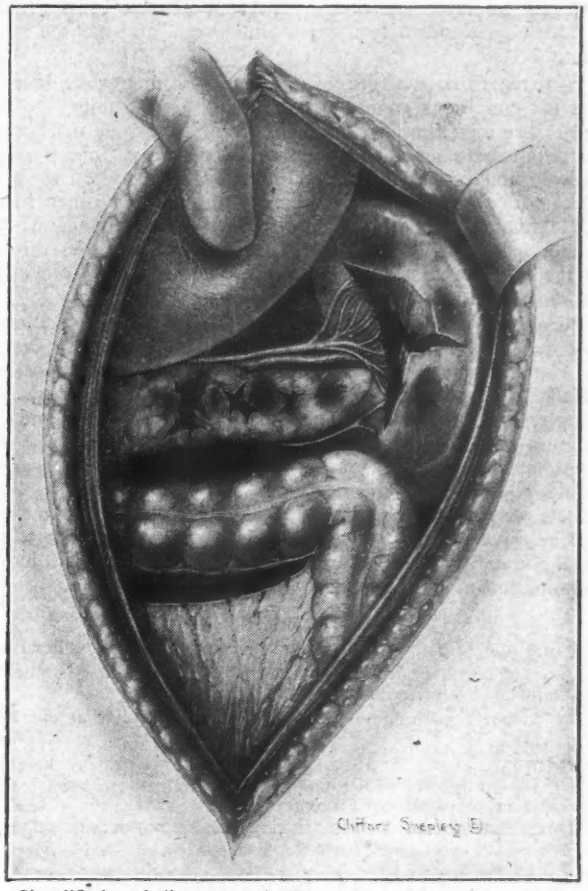
Case Report

On April 18, 1944, a civilian R.E. employee, aged 36, was working on a railway track beside stationary wagons and was not warned of the immediate approach of another truck. His left lower chest and upper abdomen were trapped between the buffers and he was subjected to a powerful crushing force. On release he was breathless, faint, and had severe abdominal pain. He was admitted to hospital one hour later, and severe shock was manifest in his facies and pale clammy skin. A temperature of 96° was recorded, but the pulse rate and blood pressure were little upset. These were respectively 76 and 118/88. Apart from slight bruising, there was no external evidence of trauma. Both lower limbs moved freely, there was no cutaneous anaesthesia, and the reflexes were normal. His abdomen was rigid but not boardlike, and shifting dullness was elicited in both flanks. The epigastrium and left hypochondrium were extremely tender on examination. Resuscitation was instituted immediately, and included the giving of morphine, plasma, and blood. Three hours after admission the pulse reading was only 90, but the volume not so good as previously. The blood pressure was now 120/85. The patient complained of severe abdominal pain, and this was not relieved by morphine. The abdominal rigidity persisted but was still not boardlike, and the abdomen seemed generally fuller. Dullness had spread medially, and was now generalized. A catheter was passed and 8 oz. of clear urine withdrawn.

The picture was that of a severe progressive internal haemorrhage. The patient was becoming more restless, the pulse was not so good, and operation was planned on a provisional diagnosis of rupture of the spleen.

Operation.—Major Sington, R.A.M.C., administered ethyl chloride, oxygen, and ether anaesthesia. The operation was begun five hours after admission, and a blood-drip transfusion was running throughout. A midline upper abdominal incision was used; the peritoneal cavity, when opened, was found to be full of blood. The omental fat was undergoing patchy necrosis, and the presenting small intestine and transverse colon showed superficial pancreatic digestion. The spleen was enlarged by a subcapsular haematoma, and was bleeding freely over the hilar aspect. The lesser sac had been torn open on the left side, and it was comparatively easy to clamp the splenic vessels and remove the spleen. Much laceration of the pancreas over the body and tail was noted, besides considerable subcapsular haematoma formation (see Fig.). Severe haemorrhage was still in progress below the transverse mesocolon, and was then investigated. The greater omentum had been ripped off practically the whole length of the transverse colon, but was not bleeding. The transverse colon itself showed a good deal of bruising, but was not ruptured. It was in the normal position and freely mobile. Two torn ends of jejunum were presenting anteriorly from a pool of blood: the bowel had been divided completely across and the distal segment torn from its mesentery for a distance of about 6 inches. The site of rupture was about 3 inches from the duodeno-jejunal junction. Haemorrhage from the mesenteric vessels was profuse. Major Sington warned us of the patient's extremely poor condition at this stage, and gave nikethamide 1 c.cm. and strychnine 1/30 gr. A very rapid resection of the 6 inches of jejunum and an end-to-end anastomosis were performed. Without further delay the wound was closed in one layer with interrupted sutures. The patient was returned to bed in rather poor condition. Before, during, and immediately after the operation five pints of plasma and two pints of stored blood were given.

Subsequent Progress.—Continuous gastric suction and intermittent intravenous infusions were kept up for 72 hours post-operatively. On the first day the general condition was fair, with a pulse rate of 110 and a blood pressure of 110/75, but less good on the second day, when the pulse rate was 130, the tongue dry, and the abdomen rather distended. The bowels moved during the night, and with the relief of distension the abdominal condition improved from the third day.



Simplified and diagrammatic illustration of gross and obvious injury to the spleen, pancreas, and greater omentum. An equally severe jejunal injury, however, is obscured by the transverse colon and mesocolon. Application of the mechanics of injury precludes missing the latter lesion at operation.

The following complications were encountered:

1. *Post-traumatic Pneumonia.*—From the second day the left lower lobe showed evidence of oedema and, later, of patchy consolidation. This was almost certainly associated with the compression force applied here.

2. *Pulmonary Embolus.*—On the fifth day the patient experienced a sudden severe pain in the left side of the chest. There was a localized area of friction overlying it in the left mid-zone.

3. *Jaundice.*—Clinical jaundice developed on the fourth day and gradually deepened. It faded after eight days and gave rise to no symptoms. As stated above, stored-blood transfusions were used.

4. *Wound Digestion.*—The wound was red and angry-looking for the first ten days, especially around the sutures. This was no doubt due to the leaking pancreatic ferments causing tissue digestion.

5. *Rectal Haemorrhage.*—Twenty-four days after injury, and when he had been up for three days, the patient felt sick, faint, and giddy. He passed a large stool with considerable bright-red blood, and a little the next day also. Recovery from this was uneventful, and I can only suggest that its origin was connected with the bruising of the transverse colon noted at operation.

Seven weeks after injury the patient was discharged to convalescent hospital. He was in good health and had no symptoms. A follow-up *x*-ray examination showed no hold-up in the passage of barium through the alimentary tract.

Discussion of Mechanism

Injury to the spleen in this case demonstrates the simple crush mechanism. The spleen is caught between the two external forces and compressed. Rupture is essentially of a bursting type.

Jejunal injuries of the character encountered here are due to nipping of the bowel between the anterior force and the

vertebral column. The force is shearing in nature. Owing to fixation at the duodeno-jejunal junction, and by virtue of its short compact mesentery, the gut has limited mobility at this level. This is especially so in the vertical plane. Consequently it is comparatively easily trapped and injured against the vertebral column. The severe pancreatic damage bears witness to such a mechanism in this particular case, and has the same origin.

With regard to the transverse colon, it is interesting to note that the conditions governing the small-intestine injury do not hold. The long mesentery allows of bowel escaping or slipping out from between the anterior and posterior forces. The bruising and trauma in the colon noted at operation seem to indicate this. The apron-like omentum, on the other hand, would not so escape, and must needs be trapped against the vertebral column by the anterior force. The pull thus thrown on the junction of the transverse colon and greater omentum shows itself in the tearing apart of the two structures.

Recognition of visceral damage at operation is facilitated by a realization of these points. The dual mechanism should be kept in mind, and may help one to avoid a possible pitfall. The persistent bleeding coming up from below the transverse mesocolon gave me the clue, and the torn ends of jejunum were clearly visible; but it is conceivable that a jejunal injury could have been missed in a similar case. The danger would be greater if the lesion was incomplete and no large vessels were involved. The effects of the simple crush force will be obvious and may seem sufficiently gross, but the effects of the shearing force must of necessity be excluded by an examination of the upper small-intestine coils.

Summary

A case of severe abdominal crush injury with recovery is described.

The mechanism of injury to the structures involved is studied in the light of operative findings.

The value of information on this subject as a guide at operation is indicated.

I wish to thank Brig. Anderson, Consulting Surgeon to the Command, for his helpful advice and criticism both in treatment of the case and in preparation of the report.

Medical Memoranda

A Direct Coagulase Test for Rapid Detection of Staphylococcus aureus

Rapid determination of the presence of *Staphylococcus aureus* is often important both for surgical treatment and for the use of penicillin. For practical purposes the organism is as a rule finally identified by the plasma coagulase test. As ordinarily carried out, this involves obtaining a pure 18-hours broth culture of the coccus. But should there be a rich mixed infection considerable difficulty and delay may occur—up to 3 days or more. Mixed cultures in fluid medium or even a pure culture of *Staph. aureus* on solid medium may fail to give a positive reaction. Accordingly, a very simple and reliable quick method has been devised.

Method.—Two or three loopfuls of the suspect material (pus or a purulent blood-clot) are added to a small test-tube containing 0.5 c.cm. of a 4 to 8 times dilution of human plasma (citrated or oxalated) with 0.85% saline and well mixed. If a swab moistened with the material is used, it is well squeezed out by dipping into the diluted plasma and pressing repeatedly against the wall of the tube. The tube is kept at 37° C., and the test is read after 1/2, 1, 6, and 12 hours. A tube of uninoculated plasma serves as a negative control, and another, inoculated with a known *Staph. aureus*, as a positive. Coagulation of the plasma indicates presence of *Staph. aureus*.

Results.—Materials from 72 cases were examined, comprising finger- and toe-pulp infections, suppurating war wounds, and pleural and joint effusions; in 42 of these swabs were submitted. The age of the specimens varied from 2 hours to 4 days. Results have been checked throughout by the ordinary methods, including isolation of pure cultures and their examination for coagulase, etc. In 28 cases no *Staph. aureus* was yielded by any method; in 44 the organism occurred in numbers varying from 3 to innumerable colonies per 4-in. Petri plate. Of the positives, 20 were pure cultures and 24 were mixed with one or more of the following: *B. pyocyaneus, B. proteus*, diphtheroids, enterococci, streptococci, sarcinae, micrococci, anthracoids, coliforms, anaerobes. In 42 (95%) the direct coagulase test was positive. The two cases in which the direct test failed yielded on primary culture a few colonies of *Staph. aureus* with a rich mixture of diphtheroids and enterococci. On the other hand, positive results were got with equally unpromising materials. The quickest positive was obtained in 20 minutes and the slowest after 10 hours. The majority of positive tests were recorded after 4 hours, and those which were negative at this time usually remained so. The presence of other organisms did not prevent a positive reaction except, rarely, where *Staph. aureus* was very scanty. But the early readings must not be omitted, since a coagulum which forms within several hours may liquefy later owing to admixture with proteolytic bacteria. In no instance was there a fallacious positive result in the absence of *Staph. aureus*.

The value of the test is apparent, since direct positive coagulase reactions often develop within several hours—i.e., before ordinary cultural methods can yield a result; also, positives are frequent where *Staph. aureus* is too scanty to be detected microscopically even in several direct smears, or where a mixed infection with various cocci prevents their identification so that repeated plating is necessary before a pure culture is secured.

The above work was done with the support of the Medical Research Council.

Bacteriology Dept., University and Western Infirmary, Glasgow.

IWO LOMINSKI.
ERICA GROSSFELD.

Methaemoglobinaemia after Ingestion of Anti-gas Ointment

A review of the literature reveals no record of methaemoglobinaemia resulting from the ingestion of anti-gas ointment. Since we understand that several cases have occurred, some of them fatal, it is thought that the following report may be of general interest.

CASE HISTORY

The patient was a naval rating, aged 24, serving a sentence of detention for desertion. On April 24, 1944, he sustained an injury to the left big toe, and the abrasion was treated with sulphanilamide powder. By May 3 the lesion had completely healed and he was returned to full duty.

On May 25 he reported, complaining of headache, nausea, and vomiting after breakfast; T. 100°, P. 120, R. 18. Apart from a generalized cyanosis, such as commonly occurs with sulphonamide therapy, no abnormal physical signs were found. The condition cleared up in 36 hours and he again returned to duty.

On June 1 he was brought in from parade complaining of nausea, vomiting, and vertigo. Cyanosis was extreme, generalized, and mauve-coloured. There was a generalized flaccidity and marked retardation of the mental processes, inaccessibility, and clouding of the intellect. He replied to questions only after long latent intervals and not always relevantly. The pupils were moderately dilated and all the reflexes sluggish. The retinal vessels were black and the veins and arteries indistinguishable in colour. T. 97.6°; P. 120—feeble; R. 16—shallow and irregular, with occasional yawning. The heart sounds were faint and there was a tick-tack rhythm. B.P. 110/under 50. As there seemed to be a risk of circulatory failure, and in order that investigations might be carried out, he was removed to hospital.

On admission the above findings were confirmed and a specimen of blood was taken. It was chocolate brown in colour, and spectroscopic examination showed that it contained a high percentage of intracorpuscular methaemoglobin. No sulphaemoglobin was demonstrated. The urine was clear and there was no evidence of abnormal pigments. A blood count showed a moderate leucocytosis of 15,600, with 80% polymorphonuclears; haemoglobin 82%. He was treated with methylene blue 4 gr. orally four-hourly, and apart from a slight pyrexia lasting 12 hours his condition rapidly improved. He was discharged two days later and returned to full duty three days afterwards.

Although a search of the rating's cell was made, no noxious substance was found, but he subsequently confessed that he had taken anti-gas ointment No. 5 on both occasions. He had secreted the ointment in a tube of toothpaste, an examination of which confirmed his statement. He was above the average intelligence, and on questioning gave the following account of his attack. He felt weak, faint, and giddy; his body became anaesthetic, and he did not feel the needle puncture when the blood was taken. Temporary blindness occurred, lasting 1½ hours. Hearing was impaired, and although he could understand questions he could not formulate replies. The vomiting began 45 minutes after taking the substance, and the above symptoms appeared an hour later.

Unfortunately, we are unable to give the nature of the chemical agent causing the methaemoglobinaemia as the ointment is still on the secret list.

Our thanks are due to the Medical Director-General of the Navy for permission to publish this case; to Capt. A. G. Venables, R.N., Commanding Officer of R.N. Detention Quarters, Canterbury; to Dr. H. A. Treble, under whose care the patient was admitted; and to Dr. Magnus Haines and Dr. W. H. Boorman.

WILFRID GOUGH, M.R.C.S.,
Surg. Lieut.-Cmdr., R.N.V.R.
NORMAN ASHTON, M.R.C.S.,
Pathologist, Kent and Canterbury Hospital.

Reviews

ABSENCE FROM WORK IN INDUSTRY

Healthy Industry. By the Automatic Telephone and Electric Co., Ltd., London and Liverpool. (Pp. 52. 2s.) Liverpool: A. W. Duncan & Co., Ltd.

Most industrialists now realize that they cannot run their organizations efficiently unless they know the amount and causes of their employees' absences from work. Lost time in industry is caused mainly by sickness and accident, but lateness and absence without leave are no trifling hindrances to production. Lost time may be a reflection of bad management, of an unhealthy working environment, or of fatigue from long hours and arduous travelling to and from work. Industry can no longer afford to ignore these evils, and the recording of absence is the first step towards their prevention.

The second half of this booklet gives a detailed and lucid description of a system of recording absence from work. It is based on the principle that the foreman in charge of each department, rather than clerks in a central office, should obtain from the worker the information about his absence. This is a practical suggestion which prevents loss of production time by workers waiting for interview at a central point on return to work, and it ensures that the foreman takes more than a casual interest in the troubles which beset those for whose welfare he should be partly responsible. There are illustrations of forms used and graphs showing the absence rates of women employed by this company. Unfortunately the first part of the booklet is given to an edited version of a report by the medical adviser to the management. "It is thought that it may be a guide to other industrial health services as to the manner in which managements should be made practically cognizant of the work done . . . by such services." But to be told that after standard preparations had failed an ointment dispensed by the "first-aid room" successfully cured and prevented dermatitis due to benzyl alcohol, or that modern drugs helped to reduce the incidence of sepsis, is no help to anyone if the names of the drugs and the ointment are not mentioned. Other paragraphs dealing with toxicological investigations seem to indicate that the author could not have been familiar with the published work relating to similar hazards found in other industries.

This little book may help industrial organizations in their difficult task of recording absence, but the earlier sections give a poor example of an industrial medical officer's annual report, and the author would have been well advised not to publish them.

A DIGEST OF PSYCHOLOGY

The A B C of Psychology. By C. K. Ogden. (Pp. 144. 9d.) Penguin Books. 1944.

This digest of psychology has now been reprinted in the Penguin Series. Like every digest it is not always clear to the uninitiated, and may confuse such readers as to what is essential in psychology and what is not. To the initiated the impression "psychology" is apt to convey is that it is a very large subject and that any attempt to condense it drastically will come to grief. If, however, psychology is to be compressed, it could not be better done than by an author who has had a sound training in the subject, who, as editor of the International Library of Psychology, Philosophy, and Scientific Method, must have studied with care a vast literature on and around the subject, and as the inventor of Basic English is more than familiar with the need for clarity of language. Such is C. K. Ogden. He starts by pointing out the inexactitude of definitions and the disadvantage that study of body and mind involves us in a double language. Yet each has made valuable contributions to psychology. Neurology has examined the "clearing houses" of impulses and inhibition, it has clarified to some extent memory and conditioning, while the recent insistence on whole brain activity is likely to have valuable results. It has not, however, studied or made allowances for purpose, the existence of which we can hardly deny. Mind has usefully been studied by observing the behaviour of animals, especially of the great apes, and the way in which a child learns by "Gestalten" and expands his universe in play. The author rightly declares the "games are not play" but are organized activity imposed on the child by adults. In the study of speech we must notice the difference between animal noises, which are expressions of inner feelings, and human names, which are applied to external objects. Speech is of great value, but may be dangerous to clear thinking because of mental laziness in the use of words. Introspection has also much to contribute to the study of psychology and must not be despised. There are chapters on how we think, why we feel, and how we do; also on how the mind may go wrong. Such themes as suggestion, hypnotism, telepathy, and spiritualism are briefly touched on, and the author is impressed by the theory of right and left cerebral dominance. Finally, there is a chapter on the future of education and the importance of the classification of mental types and mental testing. But the author insists that, with the increase in facilities of communication by speech and the written word, an increase in conscious control is essential.

GUIDANCE FOR THE TUBERCULOUS

A Guide for the Tuberculous Patient. By G. S. Erwin, M.D. (Pp. 115. 3s. 6d.) London: William Heinemann Medical Books Ltd.

The prescription of a way of living for a tuberculous patient must surely be one of the most difficult problems in the art of clinical management. The victim of a disease which can at any moment overwhelm his body with toxins has become cautious. Autosuggestive fears from previous disappointments curtail his trust. At the same time, the tuberculous patient has long leisure to think about himself, though the doctor may not always have the leisure to make sure that his hygienic advice is properly grasped. Yet upon a way of life chiefly depends the patient's progress.

Dr. Erwin's book is an admirable instrument in the armamentarium of psychological treatment. We do not complain that the directions given in this guide are often blunt and here and there lacking in subtlety. A man directing a fire-party is not expected to debate theories of pyromania. The tuberculosis physician has to make his directions practical and somewhat dogmatic, yet he is always pressed for further details. The book is meant for the average patient, and it gives to the reader a sense of uncomplicated counsel such as the physician would offer in person. This book will save his time and will advance the patient's understanding. Patients' morale is fundamental in the arrest of tuberculosis. A guide like this is a contribution to morale, and therefore to treatment.

Preparations and Appliances

AUTOMATIC PIPETTE USED IN PERFORMING THE WASSERMANN TEST

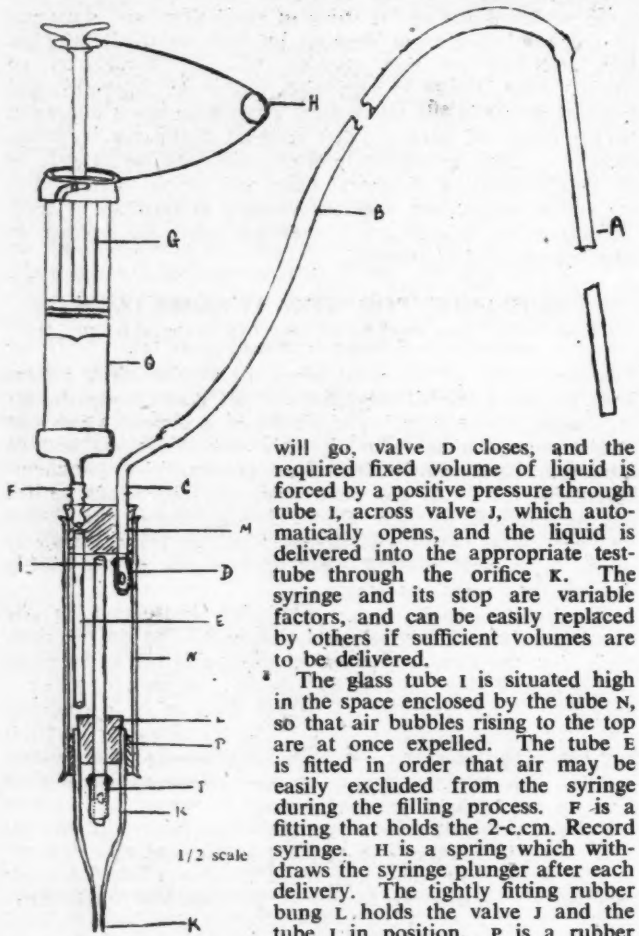
Dr. O. H. SIUNG writes from the Public Health Laboratory, the Medical School, King's College, Newcastle-upon-Tyne:

In a big laboratory carrying out Wassermann reactions on large batches of sera the employment of an instrument which effects rapid, accurate, and comfortable deliveries of fluid reagents is of distinct advantage. The usual methods involve the use of glass pipettes, which have to be replenished at regular intervals. The apparatus is subjected to constant manœuvring in and out of the vessels containing the stock mixtures—a procedure that is apt to become rather tedious. The accompanying diagram illustrates the constructional details and mode of action of an instrument which has been found satisfactory in use.

The filler tube A dips into the container of stock reagents employed, and is connected to the pipette proper through the length of rubber tubing B to an angled glass tube, C. Tube C fits tightly into the rubber bung shown in section and terminates in a valve of the bicycle-tyre type, D. The valves, D and J, are among the most important components of the ensemble, as they have to accommodate themselves to several requirements; after trial and error with the spring and conical glass types this design was finally adopted as the most suitable arrangement. The valve used had to be (1) easily opened, (2) dead sure in action, and (3) absolutely secure against reverse flow. Its design is simple, and it lends itself to easy cleaning and dismantling. It consists of a glass tube, of about 4 mm. bore, sealed at one end and having a smoothly ground lateral orifice; over this opening is fitted a section of latex tubing similar to that used in the manufacture of surgical rubber gloves.

The liquid is drawn into the barrel of the glass tube N by the suction produced by the syringe O, the plunger of which

is drawn out by the spring H. A glass stop, G, is provided which checks the piston when the required volume of fluid is drawn over. The whole of the instrument, including the syringe, is filled with fluid before deliveries are undertaken. This is effected by moving the piston of the syringe to and fro until all air is expelled. When the piston is depressed as far as it will go, valve D closes, and the required fixed volume of liquid is forced by a positive pressure through tube I, across valve J, which automatically opens, and the liquid is delivered into the appropriate test-tube through the orifice K. The syringe and its stop are variable factors, and can be easily replaced by others if sufficient volumes are to be delivered.



The glass tube I is situated high in the space enclosed by the tube N, so that air bubbles rising to the top are at once expelled. The tube E is fitted in order that air may be easily excluded from the syringe during the filling process. F is a fitting that holds the 2-c.cm. Record syringe. H is a spring which withdraws the syringe plunger after each delivery. The tightly fitting rubber bung L holds the valve J and the tube I in position. P is a rubber collar which maintains the nozzle R firmly in place.

The presence of rubber and metal components may affect the reagents and the material tested, and so vitiation of the tests may result. To determine whether such changes took place, an investigation was undertaken using sera of known reactions. The first series was done with the use of ordinary all-glass pipettes; in the second series we employed the instrument described. The results are as follows:

All-Glass Pipette, Series 1

Serum	Tube 1 (2 M.H.D. of Complement)	Tube 2 (4 M.H.D.)	Control Tube (2 M.H.D.)
I: Positive ++ ..	No haemolysis	No haemolysis	Complete lysis
II: " " ..	"	"	"
III: " " ..	"	Slight haemolysis	"
IV: Negative — ..	Complete haemolysis	Complete haemolysis	Complete haemolysis
V: " " ..	"	"	"
VI: " " ..	"	"	"
VII: Weak positive +	No haemolysis	Trace not lysed	Complete lysis
VIII: Very weak positive ±	Partial lysis	Complete lysis	"

Automatic Pipette, Series 2

Serum	Tube 1 (2 M.H.D. of Complement)	Tube 2 (4 M.H.D.)	Control Tube (2 M.H.D.)
I: Positive ++ ..	No haemolysis	No haemolysis	Complete lysis
II: " " ..	"	"	"
III: " " ..	"	"	"
IV: Negative — ..	Complete haemolysis	Complete haemolysis	"
V: " " ..	"	"	"
VI: " " ..	"	"	"
VII: Weak positive +	No haemolysis	Complete lysis	"
VIII: Very weak positive ±	Partial haemolysis	"	"

It will be seen that no significant difference in results has resulted.

In a two-tube test (2 tubes and 1 control) it took two persons 7½ minutes to deliver sensitized sheep cells when 331 tests were being done.

In the technique employed in the Public Health Laboratory in Newcastle-upon-Tyne the stock mixtures are so adjusted that 1 ml. contains the required amount of the antigen or complement or sensitized cells as the case may be; accordingly the glass stop included in the syringe is ground down until 1 ml. is accurately delivered. In investigations carried out to test consistency and accuracy the following results were obtained:

	Volume delivered
(A) 50 deliveries into a 50-ml. standard flask	50·2 ml.
(B) 50 " " " " "	50·0 ml.
(C) 25 " " 25-ml. cylinder	25·1 ml.
(D) 25 " " " "	25·1 ml.

When one considers that the very slight errors made in the above deliveries are mutiplied by 50 or 25, as the case may be, for each delivery, the error per delivery must be negligible.

When the instrument is in use the filler tube is placed in the fluid reagent and the pipette is held in the left hand at an approximate angle of 30° to the horizontal; the right hand then manipulates the plunger of the syringe. The downward stroke of the cycle delivers the required volume, and the upward stroke caused by the pressure of the spring immediately replenishes the unit. The whole apparatus can be dismantled and washed in three minutes. Should an air-lock develop in the fluid column it will be immediately visible through the glass parts and so may be eliminated.

Variation in speed of delivery does not affect volumes delivered, as is seen by the following trial.

25 deliveries in 14 seconds gave 25·1 ml.
25 " 35 " " 25·1 ml.

Flexion and extension movements of the rubber tube leading from the reservoir of stock mixture do not affect the volume of fluid delivered by each depression of the plunger. The volume, of course, will vary if the measuring element is separated from the point of delivery by a non-rigid part such as a length of rubber tubing subjected to continuous movement. The fluid is ejected under pressure, and the jet produced thoroughly mixes the reagents.

The advantages claimed for the instrument are as follows: (1) rapid delivery; (2) accuracy in measuring predetermined volumes; (3) comfortable deliveries; (4) reagents are mixed thoroughly by the jet produced.

The automatic pipette described has been in use in the Public Health Laboratory in Newcastle-upon-Tyne, and has been found to function satisfactorily. Messrs. Down Bros. have kindly undertaken to make a modified form of the apparatus for us. In this model the upper rubber bung M and the rubber collar securing the delivery nozzle R are replaced by screw fittings cemented to the glass barrel N.

My thanks are due to Dr. S. H. Warren, director of the Public Health Laboratory in Newcastle-upon-Tyne, and to Mr. John Hall for encouragement and useful suggestions leading up to the evolution of the final model.

CURTAIN NET IMPREGNATED WITH PARAFFIN

Squad. Ldr. W. G. HOLDSWORTH, F.R.C.S., writes:

During the past few months I have been using as a dressing material curtain net impregnated with paraffin. A shallow tin is partly filled with layers of the net (of 2-mm. mesh), and molten hard paraffin to which has been added liquid paraffin to 10% is poured over the material, only sufficient being used to moisten the threads without occluding the mesh. The tin is sterilized in the autoclave at 15 lb. pressure for 15 minutes.

The net is used as a single layer on the wound surface, and is covered with any desired dressing—e.g., acriflavine, eusol, saline, or dry gauze. Adhesion between dressing and wound is prevented by the net.

The preparation possesses several advantages over tulle gras principally in that the wax remains on the threads and does not spread across the mesh to cause retention of exudates and maceration of skin. For the same reason there is presumably less interference with the absorption of sulphonamide powder, should this be applied to the surface, or with the action of antiseptics incorporated in the dressing.

The idea is not original; similar net made with hard paraffin was in use at the Royal Melbourne Hospital some years ago, though I have not known it used elsewhere. Modified as directed, because of the lower temperatures prevailing in Britain, it will prove a useful accessory in wound treatment, particularly in heavily infected injuries and sloughing burns.

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ERYTHEMA NODOSUM

We print in this issue the Bradshaw Lecture by Prof. C. Bruce Perry on the aetiology of erythema nodosum. In his full account of the history of this disease Perry deals in turn with the successive theories advanced to explain its genesis. First regarded as a manifestation of rheumatism, it has also been supposed to be a disease *sui generis*, and in more recent times an association with primary tuberculous infection has been established with increasing frequency and certainty. The epidemics which were taken as proof of an unknown infectious agent have repeatedly been explained by the discovery of the person with open tuberculosis who had simultaneously infected a number of other people and so given rise to this manifestation of the disease. That erythema nodosum is often tuberculous there is no doubt; the question is, How often, if ever, is it due to other infections, and what are they?

Perry's original material consists of 112 patients, with the usual preponderance of females. The Mantoux test, performed with 0.01 mg. of tuberculin only, was positive in 61 patients, of whom 32 either showed *x*-ray evidence of tuberculosis at the time of the attack or developed signs of the disease subsequently. Thus 28% were certainly tuberculous, and 25% probably tuberculous, making a total of 53% only in which evidence of the existence of a tuberculous lesion was obtained. Subdivision into two age groups alters the picture considerably. The under-15 age group has a slight preponderance of males, of whom 72% were either definitely or probably tuberculous, while in the patients over 15, of whom only 2 out of 45 were males, the corresponding figure for tuberculosis is only 23%. Evidence of a relationship with acute rheumatism was slender: 10 gave a history of this disease, but only 2 developed a subsequent attack, and in 5 others there was evidence of tuberculosis. Since these 10 cases were the only examples of erythema nodosum observed by the author among over 1,000 patients with acute rheumatism, this association is clearly so uncommon as to cast serious doubt on the validity of the great bulk of previous observations connecting the two diseases. On this evidence, and for other reasons given, particularly the association of the disease with coccidiosis, it is only possible to conclude with Perry that erythema nodosum is a reaction which may be elicited by any one of several agents. That predisposition is also a necessary factor seems to be shown by its infrequent occurrence even in patients subject to the necessary stimulus and perhaps also by its familial incidence. With his final plea that we should not be content to name a disease when the name is no explanation of its nature there will be general agreement.

Scandinavian research has been in the forefront in all matters connected with tuberculosis for a number of years, and the results of another study of this subject pursued by W. Mascher[1] in Sweden furnish an interesting comparison. It may be said at once that Mascher's findings and conclusions differ much from Perry's. Although he grants that erythema nodosum may occasionally be due to other infections, a tuberculous origin was demonstrated in a very high proportion of the cases studied, and these were all in the higher age group which in Perry's series yielded so small a proportion found to be tuberculous. This study was carried out in the Swedish province of Kalmar, and the material consisted of 275 cases of erythema nodosum in subjects of 16 or over observed during the years 1932–41; a further group of 60 patients are those with diagnosed tuberculosis who give a history of erythema nodosum; of 335 in all, 287 were women and 48 men. About half the attacks occurred between the ages of 16 and 20, and the great majority between December and May. Cold may be a factor in producing the condition, and the heavier clothing with which the male protects his legs has been suggested as an explanation of the low incidence in his sex. Prodromal catarrh with or without symptoms of fever was a common occurrence and presumably a consequence of the primary lung infection. In no case was there clear evidence of aetiological association with rheumatism.

Evidence of a tuberculous origin was obtained in several ways. In the first place the Mantoux test was negative in only 9 cases: it should be noted that before accepting this conclusion the test was performed with 1 mg. of tuberculin. Radiography followed, and excluding the 9 tuberculin-negative patients and 22 in whom long-standing tuberculosis was found, there remained 244 patients in the first group. Radiological evidence of an early pulmonary tuberculosis was obtained in 149 of these, more than half showing both a primary lung focus and glandular involvement; 3 had a tuberculous focus elsewhere. That a single negative skiagram is untrustworthy as evidence excluding lung involvement is shown by the subsequent history of the remaining 92: 46 developed a tuberculous lesion of some sort, including 36 with pleural effusions. The table on page 63 detailing the subsequent fate of the whole group of 244 is the most illuminating thing in this impressive monograph: 118 developed no further tuberculous lesions, but 97 had pleural effusions, 14 had lung lesions, 5 being cases of open phthisis, and smaller numbers had involvement of the peritoneum, bones, genito-urinary tract, or meninges. There were 10 deaths in this group and 18 in the second group of 60 patients who were first seen with overt tuberculosis and gave a history of erythema nodosum. This investigation included case-finding among contacts with a view to determining the source of infection. Radiography and other investigations among contacts of 221 patients with erythema nodosum identified a source of infection in the family in 53 and outside the family in 76; in 49 no source could be found, and in 44 the search was necessarily incomplete, as in nurses, soldiers, and

[1] *Acta tuberc. scand.*, Suppl. X, 1943.

students. When the source was found it was sometimes possible to determine the incubation period: 3 patients were exposed to infection only on a single day, and the interval before the appearance of the lesion was 32, 41, and 54 days; 4 were exposed for not more than 8 days, and in them the incubation period lay between 37 and 54 days. The extreme possible limits in 33 patients for whom such data are available were 21 and 59 days.

No one who studies Mascher's findings will be able to escape the conclusion that erythema nodosum is at least very often the consequence of exposure to tuberculous infection within the previous two months. This is certainly so likely to be its cause that the patient should be kept under regular clinical and radiographic observation, if necessary for some years, and his family and other associates should be searched for the source of his infection. Until such an investigation as Mascher's has been carried out in England we cannot know with certainty that Swedish findings are wholly applicable here, but in the meantime no one is likely to go far wrong who regards a case of erythema nodosum as tuberculous unless it is proved otherwise.

CLINICAL SIGNIFICANCE OF HYPOPROTEINAEMIA

Hypoproteinaemia, or an abnormal lowering of the plasma proteins, has a wide clinical significance, and the literature on it has been recently reviewed by Elman and Lischer[1] and by Wilensky[2]; the latter prefers the term hypoalbuminaemia. The causes of hypoproteinaemia include malnutrition; loss of digestive capacity; decreased intestinal absorption; hepatic disease; malignant disease; bowel obstruction; increased protein loss through suppuration, ascites, nephrosis, burns, external gastro-intestinal fistulae, and haemorrhage; and thyrotoxicosis. In thyrotoxicosis, hypoproteinaemia results from an associated parenchymal lesion of the liver and the increased katabolism of protein that occurs in this disease. Four main causes of hypoproteinaemia can be distinguished: lack of food, loss of plasma protein, excessive loss of nitrogen, and a defect in protein synthesis. As protein synthesis takes place in the liver it is easy to see how anything which affects the liver parenchyma results in hypoproteinaemia. Post-operative hypoproteinaemia has been recognized recently: a state of negative nitrogen balance may occur after operation as a result of anaesthesia, surgical manipulation of the viscera, a brief period of starvation, shock, fever, and vomiting; Cuthbertson[3] has demonstrated appreciable losses of nitrogen after severe injuries and operations, and Thornton, Adams, and Schafer[4] have shown that a significant fall in the plasma proteins occurs after major thoracic operations.

A patient with hypoproteinaemia may develop a number of symptoms, depending on how quickly the condition has arisen. Thus acute hypoproteinaemia comes on immediately after bleeding and within a few hours of burns; subacute hypoproteinaemia takes several days to develop in intestinal obstructive and acute liver disease; but chronic hypoproteinaemia of nutritional origin or due to chronic liver disease may take weeks or months before it becomes of clinical significance. The general manifestations are those resulting from a disturbance in water distribution—namely, oedema of the subcutaneous tissues and various viscera. Abdominal distension from oedema of the viscera after operation may be due to post-operative hypoproteinaemia, and clinical studies have shown the frequency of peripheral subcutaneous oedema in patients who have been operated on. This oedema has been designated "nutritional" to distinguish it from cardiac, renal, and lymphatic oedema. Other factors, such as muscular action, gravity, tissue pressure, and venous pressure, may of course influence the oedema. Ascites in cirrhosis of the liver may be due to hypoproteinaemia as well as to portal obstruction. It has been diminished in such cases by plasma transfusions and a high protein diet, which have no effect on the portal pressure. Haemoconcentration from loss of blood plasma may supervene on severe burns, but the red count may also rise after abdominal operations or in patients with intestinal obstruction or general peritonitis. This is due to hypoproteinaemia and can be corrected by injections of plasma but not of glucose or of saline. Many surgical patients excrete very little or no urine after severe operations, in spite of adequate injections of saline and of glucose. Excluding patients with renal disease or post-operative retention, many such cases are due to inability to maintain fluid balance because of hypoproteinaemia. One concept of shock is that it is an acute hypoproteinaemia; in the restoration of blood volume in surgical shock exogenous protein (e.g., plasma) is needed because the body is unable to supply it quickly enough. Ravdin and his co-workers have recently shown that shock after haemorrhage occurs more readily in an animal suffering from hypoproteinaemia than in one with an adequate plasma protein level. Lastly, delayed wound healing, including burst wounds, is often seen in the patient with hypoproteinaemia. Though many factors are concerned in delayed wound healing, it is now fairly well established that protein deficiency plays an important part in wound disruption—in one group of cases the serum protein levels were below normal.[6]

There are various methods for correcting clinical hypoproteinaemia. If the patient can eat and there is no appreciable disturbance of liver function a high-protein diet can be given; more recently amino acids have been administered by mouth to avoid digestive disturbances. Pure amino acids are dear, but a casein hydrolysate containing the essential ones is now available and is suitable for oral or parenteral use. Transfusions of blood, plasma, or ascitic fluid in cases of acute hypoproteinaemia may often be dramatic in their effect and, indeed, save life, though in the chronic condition due, for example, to malnutrition the results may be disappointing because such large quantities of protein are needed. In the hepatic type of hypoproteinaemia liver damage interferes with ready use of proteins, and here the parenteral injection of hydrolysed protein, such as casein hydrolysate, may be advantageous

[1] *Surg. Gynec. Obstet. (Internat. Abstract Surg.)*, 1943, **76**, 503.
[2] *Arch. Surg.*, 1944, **48**, 36.
[3] *Nutrit. Abstr. Rev.*, 1940, **10**, 1.
[4] *Surg. Gynec. Obstet.*, 1944, **78**, 368.
[5] *Arch. Surg.*, 1944, **48**, 491.
[6] *J. Amer. med. Ass.*, 1941, **116**, 669.

BRONCHIAL STENOSIS

Bronchiectasis has attracted more attention than bronchial stenosis, but Laennec[1] recognized the latter and described some of its effects. He gave an illustration, too, of a bronchus dilated and then obliterated by a scar. Dr. William Ewart[2] noted the possible connexion between the two, and stated that when a bronchiectasis occurs beyond a stenosis the mechanism is generally held to be analogous to that of emphysema beyond a partial obstruction, which allows a slow entry but delays the escape of air, and that syphilis, being a well-known cause of bronchial stricture, is therefore a factor in the production of bronchiectasis. Bronchial stenosis caused by tuberculosis and complicating the course of pulmonary phthisis has been recognized in later years as more important than the syphilitic variety, and Schmidt[3] has recently drawn attention also to non-tuberculous bronchial stenosis. Berblinger,[4] from a series of necropsies at Davos, has given an account of the morbid anatomy of bronchial stenosis produced by tuberculosis. Thus endobronchial stenosis may be caused by a proliferative form of ulceration or tuberculoma, while peribronchial stenosis may result from the deformity caused by the fibrotic changes in tuberculous lymphatic glands, or, in children, from enlargement of the lymphatic glands. Obstruction can be caused by caseous masses, blood, and secretions, or, in children, by rupture of a caseous gland into a bronchus. Besides this, fibrous occlusion of a bronchus can be caused by scar tissue, so that stenosis can be produced in several ways, and it usually affects one or other main bronchus, more commonly the left, or a primary division. From the clinical aspect, McConkey and Gordon,[5] in a study of 95 adult patients with pulmonary tuberculosis and positive sputum who presented no evidence of collapse of the lung, found 61 who had persistent rhonchi unrelieved by cough. These included 22 men and 39 women. In 58—that is, 95%—the diagnosis of stenosis of a major bronchus was verified by bronchoscopy. The correlation between persistent rhonchi and bronchial stenosis was therefore close. In the other 34 patients of this group of 95, who did not present persistent rhonchi unrelieved by cough, no bronchial stenosis was found by bronchoscopy. The lesions observed at bronchoscopy corresponded to those described by Berblinger, but in some took the form only of a localized bronchitis. In five instances a collapsing bronchus was found. The mucosa of the bronchus appeared normal but the bronchus contracted to a slit on expiration. McConkey and Gordon conclude that persistent rhonchi in the course of pulmonary tuberculosis justify the diagnosis of stenosis of a major bronchus, the rhonchi being always loudest over the affected bronchus and therefore localizing the site of the stenosis.

Secretan[6] agrees, and notes that other authors also agree, that tracheo-bronchial tuberculosis is more common in women than in men, the lesions being usually found on the posterior surfaces of the trachea and bronchi. The anatomical cure does not always produce a clinical cure on account of the fibrous stenosis which follows and causes either collapse or bronchiectasis. Radiotherapy has been found to produce a reactionary oedema, which aggravates the stenosis; and artificial pneumothorax is contraindicated, since it may transform a stenosis into a total obstruction, which in turn may render re-expansion of the lung impossible. The most effective treatment is therefore by bronchoscopy. Instillation of cocaine and adrenaline causes a shrinkage of the mucous membrane; ulceration may be treated by the electro-cautery or by painting with a preparation of silver. These forms of treatment may prevent the formation of stenosis, but if that has already occurred the stenosis may be dilated. Secretan records the case of a woman who had undergone sanatorium treatment for ten years with unsatisfactory progress. At length in 1943 bronchoscopy showed an advanced stenosis of the right bronchus, which refused to admit the instillation of lipiodol. Treatment by bougies gave great relief, each treatment being followed by profuse expectoration, and lipiodol was found to pass easily into the right bronchus and demonstrated large bronchiectatic cavities. It appears that the stenosed but not completely obstructed bronchus acts like a valve, for the bronchial tree dilates on inspiration, but on expiration there is a contraction which traps the inspired air and causes a forcible dilatation. It is clear that effective treatment must be applied early in the catarrhal or ulcerative stage before much stenosis has supervened. Once that has happened artificial pneumothorax or phrenic evulsion will aggravate the condition by kinking the bronchus and causing complete obstruction. For this reason it is being recommended that bronchoscopy should be performed on every case of pulmonary tuberculosis, and certainly whenever the lung appears to improve but cough is persistent. Schmidt believes that non-tuberculous bronchial stenosis, apart from pressure by tumours and similar extrinsic agents, has not received sufficient recognition. It usually follows bronchitis with asthma or an attack of pneumonia, and affects, in contrast to the tuberculous variety, the secondary or tertiary bronchi. It is characterized by recurrent febrile attacks with an irritating dry cough. The attack lasts several days, with high temperature, until the symptoms are relieved by the expectoration of purulent sputum, sometimes blood-stained. According to the physical conditions occasioned by the stenosis, either atelectasis or emphysema is produced—that is, the lung is either collapsed or expanded according to whether air is denied entrance or remains trapped by a valvular mechanism. The physical signs consequently will vary and the heart may be displaced either towards or away from the affected side. The radiographic appearances will vary too for the same reason. A small triangular shadow with its apex pointing to the root of the lung may be seen in one of the cardiophrenic angles, as the stenosis is almost always in a lower-lobe bronchus. Schmidt records 25 cases of benign non-tuberculous bronchial stenosis (giving full details of 4 cases) in which the diagnosis was made by bronchoscopy, and claims great benefit from bronchoscopic dilatation combined with postural drainage in two-thirds of his cases.

[1] *L'Auscultation Médiate*, pp. 63 and 78; also Plate V, Fig. 1, Brussels, 1828.
[2] Allbutt and Rolleston, *System of Medicine*, **5**, 141, London, 1909.
[3] *Arch. Otolaryngol.*, 1944, **39**, 43.
[4] *Schweiz. med. Wschr.*, 1944, **74**, 347.
[5] *Amer. Rev. Tuberc.*, 1944, **49**, 140.
[6] *Schweiz. med. Wschr.*, 1944, **74**, 359.

RESTORATION OF LIBRARIES

Under the auspices of a Conference of Allied Ministers of Education an appeal is being made for the replenishment of libraries in this and Allied countries which have suffered loss in war. In Great Britain, fortunately, the university, institutional, and public libraries have suffered only localized loss, but this makes it the more incumbent upon Great Britain to help her neighbours. Books of real quality and authority are wanted, in particular scientific and technical works such as the professional man keeps for reference. It is good to hear in this connexion that the British Government has arranged to withdraw from the paper salvage drive—an enterprise pursued in some quarters with more zeal than discretion—books which may still as books serve a useful purpose. Though the appeal does not specifically make this point, it may well be that, apart

from the actual destruction of libraries, many libraries which remain intact are faced with a serious problem in making good the four or five years' hiatus in their intake of books and periodicals from other countries. To make good this deficiency is of special importance in the field of medicine, because here, as in other scientific fields also, there has been great advance under the stimulus of war, and if the fullest profit is to be yielded by the new discoveries and ideas which have been put into circulation the literature recording these advances must be as widely disseminated as possible. Obviously the allocation of the books and periodicals offered calls for expert handling, and for this purpose an Inter-Allied Book Centre, with a committee of which Sir Ernest Barker is chairman, has been set up at 3–5, Salisbury Square, London, E.C.4. While it is hoped for whole sets of periodicals and transactions, odd numbers will be welcome. This is an interprofessional appeal, and if any medical men could thin their shelves a little the sending to the Centre of a list of what they can spare will be a gesture much appreciated.

ECONOMY IN USE OF QUINIDINE

The supply position of quinidine is becoming increasingly serious both here and in the U.S.A. For some time past it has been impossible to meet all the demands, and total stocks are insufficient to meet the anticipated requirements for 1945, while the possibilities of adding to the stocks are remote. It is therefore imperative that quinidine should be used with the strictest economy. This can be done first by prescribing it only where there is need to restore the normal heart rhythm in auricular fibrillation, auricular flutter, and paroxysmal tachycardia. Secondly, the dosage should be restricted to the minimum necessary to control the case. Information tends to show that many patients take the drug over too long periods and in unnecessarily large doses—say, two or three grains. The supply position of this drug is so difficult that all practitioners are urgently asked to co-operate in economy in its use, otherwise the welfare of many patients must suffer.

SIX-HOUR PREGNANCY TEST

Pregnancy testing is not at present very convenient. The usual methods involve multiple injections or the use of expensive or outlandish animals, and the results are not available for several days. In 1942 Salmon and others[1] described a six-hour test carried out on immature female rats. The animals were injected subcutaneously with 2 ml. of night urine and killed six hours later. The urine from pregnant women caused hyperaemia of the ovaries. Twenty-four hours after the injection vaginal hypertrophy was macroscopically visible. In this first paper 78 tests were reported, with correct results in all but one: in this instance the urine was negative five days after a missed period, but was positive seven days later. Kaminester[2] confirmed the value of the test in a series of 106 cases, in which the results were quite as accurate as in Friedman tests. Other authors[3] have even claimed that the test can be further shortened, and that hyperaemia of the ovaries and capsule is visible two hours after the intraperitoneal injection of 1.5 ml. of urine; they confirm the correctness of the six-hour test, using 2 ml. of urine injected subcutaneously. In this series all of 85 diagnoses were correct. They also find that adult rats in metoestrus or dioestrus may be used if 5 ml. of urine are injected subcutaneously. All authors agree that 3 rats suffice for any one test. The accuracy of the two-hour test has, however, been seriously questioned by Farris,[4] who finds that while it is more sensitive than the Friedman test when applied to the urine of pregnant women, it may also give positive results with the urine of men and non-pregnant women. Menopausal urine gives positive results, as does urine from most women on three successive days in mid-cycle when ovulation normally occurs. Occasional positive results were also obtained at other times, and positive results appear to be related to the anticipation of coitus. Farris finds that the ovarian hyperaemia produced by the urine of non-pregnant individuals is not so persistent as that produced by pregnancy urine, as many fewer false positives are obtained in the six-hour test. Thus there is still room for hope that suitable technical adjustments in the performance of the test may yet produce a simple, short, and accurate pregnancy test.

[1] *J. clin. Endocrinol.*, 1942, **2**, 167.
[2] *Amer. J. Obstet. Gynec.*, 1944, **47**, 265.
[3] *J. clin. Endocrinol.*, 1943, **3**, 548.

TYNESIDE SCHEME FOR V.D. CONTROL

Venereal disease control is notoriously a difficult problem, and the now well-known Tyneside experiment is described in a pamphlet entitled *The Social Background of the Venereal Diseases*, by Miss H. M. Johns. The Chief Medical Officer, Ministry of Health, sums up the position when he says "it is clear that there is no one sovereign remedy . . . and that success is more likely to accrue from the steady deployment of a number of co-ordinated forces and measures.

The report is in two sections—the Social Background of V.D. and Contact Tracing. From the former some interesting facts emerge. Of 169 women who contracted V.D. outside marriage 60 were between 20 and 25 years of age, and only 6 were under 18; of 148 women contacts only 47 were single; prostitution in its narrowest sense was not common—it was attributed to craving for luxury and pleasure rather than economic need. The promiscuous woman was essentially lazy, lacked self-discipline, and exhibited no consciously held standard of life, while her employment was usually irregular. With regard to places where contacts were met, public houses accounted for two-thirds—dance halls, streets, railway stations, etc. coming a long way behind. Many of the single promiscuous women lived in rooms or small apartments, not a few of which were virtually brothels. Contact tracing followed the usual lines: interrogation of the patient, finding the contact, the first interview, attendance at the clinic, and methods of dealing with defaulters. The statement on page 16 that "46 contacts out of the 155 examined at the clinics were not infected" seems somewhat rash. "were not proved to be infected" might have been more in accordance with the facts.

Those who are interested in the subject should study this report in detail; they will also glean much interesting information from "A Sociologic Analysis of 304 Female Patients admitted to the Midwestern Medical Center, St. Louis, Mo.,"[5] from which the following deductions were made: "Their [promiscuous women's] intellectual acumen is markedly inferior to a normal sampling of the population"; "sexual activities began at an early age because of the poor and inadequate environmental conditioning"; "unless there is a social program of re-direction . . . they will revert to their former mode of behavior become infected. . . ." Much may be learned from these reports; perhaps rehabilitation of the promiscuous woman is not the least important part of any campaign against venereal disease.

[4] *Amer. J. Obstet. Gynec.*, 1944, **48**, 200.
[5] Rachlin, H. L., Surgeon (R), U.S. Public Health Service, *Ven. Dis.* 1944, **25**, 265.

A MEMORANDUM ON THERAPEUTIC SOCIAL CLUBS IN PSYCHIATRY

The plans for rehabilitation of patients of general hospitals announced recently by the Ministry of Health show the great interest the authorities are taking in the subject and the importance they place upon this form of treatment. Attention should be drawn to a form of rehabilitation that is being used for in-patients of mental hospitals and out-patients attending psychiatric clinics. This is the institution of self-governed social clubs as part of a bigger scheme of group psychotherapy. The clubs have been tried out for the past four years at Runwell Hospital and for one to two years in connexion with the out-patient departments of St. Bartholomew's Hospital, Guy's Hospital, Southend General Hospital, and East Ham Memorial Hospital. The results are so encouraging that the undersigned feel that this method merits wider publicity and attention. The problems involved are:

1. Some patients are placed in mental hospitals because they are a danger to themselves or to society. The responsibility resting on those in charge of such hospitals is great, hence a conservative attitude over risking a quick discharge of patients. The longer they stay in hospital the less normal their life becomes. In some cases the less normal their life the worse they grow. The social club is a successful way of breaking, or even preventing, this vicious circle.

2. The stigma that at times tells so heavily against the patient, both while he is in and after he is discharged from a mental hospital. The social club is a successful antidote, and helps to remove the dividing-line between the man who is or has been a patient and the man who has not had that misfortune.

3. Many people who break down lack much freedom of action, initiative, and responsibility. The social club gives an opportunity to train them to use initiative and to shoulder responsibility.

4. The number of persons attending out-patient departments of hospitals and coming into mental hospitals who have great difficulty in adapting themselves socially is overwhelming. The social club proves to be one of the easiest ways to overcome this difficulty.

5. The problem of every psychotherapist to-day is how to make the discoveries of modern psychotherapy applicable to the masses. The social club, as part of a bigger scheme of group psychotherapy, appears to be one of the most promising solutions.

The following symptoms are those that have—so far—been combated through the social clubs: (*a*) shyness and loneliness; (*b*) general and social inferiority feelings; (*c*) sexual maladjustment; (*d*) lack of incentive and aim in life; (*e*) inability to co-operate with others; (*f*) anxiety and phobias; (*g*) parental domination; (*h*) acute disappointment; (*i*) psychological effects of physical defects.

Organization.—Owing to war conditions the clubs meet once a week. They are run on democratic lines, a fresh group of officers, who form the committee, being elected every three months. The chief officers are the chairman, vice-chairman, secretary, and conveners for games, sports, refreshments, intellectual pursuits, etc. The officers are elected for this short term in order that as many people as possible shall be given responsibility and a chance to use initiative.

The committee makes out the programme for each meeting, considers the suggestions (and complaints) of members, and organizes extra events. The programmes consist of intellectual items—such as lectures, debates, a brains trust, discussions, etc. —games, sports, entertainments such as concerts, dancing lessons, dancing, whist drives, parlour games, community singing, etc. These different forms of activity are used by the doctor and his assistants to give members individual situational treatment. The doctor and his assistants attend the club meetings as ordinary members, but it is important that they work behind the scenes.

The social clubs are not a form of entertainment; they are part of a therapeutic scheme, and therefore their success depends largely on the people who are in charge of them. The training of these people (doctors and group therapists) must be a thorough one, but a certain predisposition to the work requires to be taken into consideration.

For the moment a few doctors, social workers, and occupational therapists could obtain their theoretical and practical knowledge from those who have already collected a certain amount of experience. Later a syllabus should be drawn up which ought to be included in social workers' and occupational therapists' training, and combine all that has been discovered in group therapy and therapeutic social club work.

The experiment of running a social club is not an expensive affair—two clubs have been run by the members themselves without any donation from outside—as the patients are very anxious to make them self-supporting.

E. B. STRAUSS, D.M., F.R.C.P.,
Department of Psychological Medicine, St. Bartholomew's Hospital.

R. STRÖM-OLSEN, M.D.,
Runwell Hospital, Essex, and East Ham Memorial Hospital, E.7.

J. BIERER, M.D.,
Lieut., R.A.M.C., at a Military Psychiatric Hospital.

HEALTH AT HOME

Statistics cannot tell the whole story of the nation's health any more than they can tell the whole story of anything else. Their chief value lies in affording reasonably accurate comparisons with previous years. The *Summary Report of the Ministry of Health*[1] is crowded with statistics, which are, as the Minister himself says, "unexpected and cheering," especially when it is remembered that the war was then in its fifth year. While the birth rate (16.5 per 1,000 population) in 1943 was the highest for fifteen years, the death rate (12.1) was well below the figure for 1941, and had it not been for the epidemic of influenza which sent up the deaths just as the year was closing, it would have been well below the figure for 1942, and would have constituted a new low record. Not only so, but the maternal mortality rate, the neonatal and infant mortality rates, and the mortality of children up to 10 years of age fell to levels they have never touched before, and even the rate for children between the ages of 10 and 15 was equal to the previous low record of 1939. In all this, no doubt, the better nutrition of mothers and children—the extra allowances of milk, the vitamin supplements, the school meals—is reflected.

Many of the common diseases in 1943 showed exceptionally low mortalities. For typhoid fever the mortality was the lowest ever recorded; the same was true of tuberculosis among females. Diphtheria also showed the lowest mortality on record; indeed the death rate for this disease comes down as if it were descending a flight of steps—0.064 per 1,000 population in 1941, 0.044 in 1942, 0.033 in 1943, and the notifications in the same years, 50,797, 41,404, 34,662. On the other hand, there was a considerable rise in the number of notifications of scarlet fever, from 85,000 cases in 1942 to 116,000 in 1943, but there was no increase in the death rate, which remains exactly the same as the death rate for diphtheria. Measles and whooping-cough showed slight rises, both in numbers of cases and in deaths, and the influenza death rate rose from 0.082 to 0.304.

The position concerning tuberculosis gives rise to some disquiet, for although the number of deaths from all forms of tuberculosis was only 110 more in 1943 than in the last pre-war year, 1938, which showed the lowest mortality on record, the number of notifications was up by about 4,000. It is mentioned that there has been an eager response from those staffs of industrial and other establishments to whom it has so far been possible to offer mass radiography. The rise in venereal diseases was less steep in the fifth year of war, and an encouraging fact is that the number of people who presented themselves at treatment centres for examination and were found not to be infected increased markedly, even amounting to 60% of the total number of persons attending the centres for the first time.

The figures provide justification for the Minister's claim that public health in wartime has been well maintained. It has been maintained against an unfavourable background the components of which have often been enumerated—long hours of work, adjustments to unaccustomed tasks and environments, many spare-time compulsory employments, personal anxiety, fear, and depression, exile from home and domestic comforts.

[1] *Summary Report of the Ministry of Health for the Year Ended March 31, 1944.* Cmd. 6562. H.M. Stationery Office. (1s. net.)

No one can travel at night on the London tubes, with their 30,000 sleeping shelterers, rising to twice that number when there is an alert, without realizing the danger of spread of infection and contagion in such a setting. There are factors, of course, which tell the other way—the maintenance of the general standard of nutrition, full employment, and certain emotional factors such as the recurring hope of an early peace, the excitement engendered by events, and the Britling determination to "see it through."

Vital statistics and public health occupy only one-third of this *Summary Report*. The section on war services does not carry the story down as far as D-day, so that the 40,000 beds in the E.M.S. hospitals in England and Wales so far as the report is concerned are left vacant and ready to receive casualties. Particulars are given concerning two services which will remain as peacetime organizations of first importance. One is the new medical service of blood transfusion, in which 450,000 donors—about half the total number enrolled—were bled last year. The other service is rehabilitation, and here it is mentioned that of the larger hospitals of which a survey has been made, about half are now providing some active rehabilitation facilities. In the work of reconstruction the Ministry has on hand a housing problem that is no more than outlined in this report. The proposals for the National Health Service are not repeated at length because they have already been the subject of a White Paper and of Parliamentary debate. The Ministry is co-operating in the plans for medical relief in Europe, and three of its medical officers have been appointed whole-time members of U.N.R.R.A. In almost all that it does the Ministry has to depend upon local authorities as its executives, though they are also, of course, independent bodies. Mr. Willink, whose first report it is, pays a deserved tribute to local authorities for their efficiency and resilience in the matters of public health and safety.

AWARDS TO CIVIL DEFENCE MEDICAL OFFICERS

The *London Gazette* has announced the appointment as M.B.E. (Civil Division) of Dr. Elsie Boyton, medical officer in charge, light mobile unit, Civil Defence Casualty Service, Battersea, Dr. Frederick Alfred Phillipps, medical officer in charge, mobile unit, Civil Defence Casualty Service, Chelsea, and Dr. Horatio Franklin Sparling, medical officer, shelter medical aid post, Civil Defence Casualty Service, East Croydon, and the award of the George Medal to Dr. John Beeston, medical officer, Civil Defence Casualty Service, Willesden. The citations read as follows:

Dr. BOYTON has devoted much of her time and energies to the training of her staff, and her personal interest has had a marked effect upon their efficiency during operations. She has never failed to be present at incidents when the unit has been in action, and her services have at all times been invaluable. On one occasion, persons were trapped on the fifth floor of a building hit by a flying bomb. The staircases were demolished, and the only means of entrance was by the use of the N.F.S. turntable ladder. Owing to the nature of the building, this ladder could only be used at a maximum angle suspended away from the building. It was possible for only one person to mount at a time, and to enter the building it was necessary to climb over the side of the turntable through a broken and dangerous window. Dr. Boyton insisted on being allowed to climb to the top of the building to render aid to a trapped casualty, with whom she remained until he could be removed. This feat is typical of the admirable work she has repeatedly carried out at the many incidents at which she has been present. Dr. Boyton's devotion to duty has always been a great stimulus to all who have worked with her.

During an air raid an H.E. bomb demolished a building, and people were trapped in the wreckage, which caught fire. For 10 hours Dr. PHILLIPPS supervized the rescue of many casualties and rendered the necessary surgical treatment. He performed a surgical operation on a trapped casualty under conditions of considerable difficulty and great danger before rescue was possible. Dr. Phillipps showed exceptional qualities of leadership and initiative.

Dr. SPARLING has given great assistance to the rescue services in their efforts to rescue trapped and buried victims of flying bombs. On many occasions, at great personal risk, he has crawled under the ruins of houses to attend to victims. At one incident he was held by his heels suspended over the edge of a cavity until he had completed treatment of the trapped person. Dr. Sparling has shown courage and devotion to duty without thought for his own safety.

A flying bomb demolished houses and people were trapped in the wreckage. A tunnel was driven into the debris, the weight of which was gradually forcing out the remains of a party wall. Dr. BEESTON was able to get to a woman who was trapped in the debris, through which ran several large timbers supported by the arms of a chair. He decided that a blood transfusion was necessary, and immediately commenced to effect the operation, instructing the rescuers to continue freeing the casualty as gently as possible. An escape of coal gas was affecting everybody working in the tunnel, and the rescuers were relieved from time to time; but Dr. Beeston continued for 90 minutes with the casualty, although a fall of debris took place just as the plasma bottles were being changed. As the casualty's condition continued to improve from the onset of the transfusion, rescue work was speeded up. With Dr. Beeston's assistance, she was eventually extricated and brought through the tunnel on a stretcher with the plasma tube still in position. Dr. Beeston showed courage without regard for the dangerous load above and the presence of coal gas. His skill, applied as it was on the spot, undoubtedly saved the life of the woman.

NUFFIELD PROVINCIAL HOSPITALS TRUST

The Provincial Hospitals Regionalization Council of the Trust held a meeting at Liverpool on Dec. 15, under the chairmanship of Sir George Martin, when Sir E. Farquhar Buzzard and Alderman W. Hyde, two of the Governing Trustees, were present.

Liverpool University: Department of Neurology.—The Vice-Chancellor of the University of Liverpool announced that as a result of the generosity of the Trust the University had decided to establish a Department of Neurology, the need for which, especially on the surgical side, has become increasingly compelling. The services of the new department will be available both to voluntary and to municipal hospitals throughout the district. The Trust, after considering a report by its Medical Advisory Council, has decided to make a grant to the University of £3,000 a year for five years, and the balance of the income required is now being collected. A promise of the capital expenditure which will fall upon the University has already been obtained from an anonymous benefactor.

Leeds University: Chair of Psychiatry.—The Trust is to provide £15,000 to enable the University of Leeds to establish a whole-time Chair in Psychiatry, in association with a complete Psychiatric Unit. There will be facilities for both undergraduate and postgraduate instruction and for research in the branches of psychological medicine as well as for treatment. It is suggested that the functions of the unit shall include the establishment of close contact between general medicine and psychiatry and the clinical integration of the various mental health services in the area which at present function separately. Such a unit would lead to a close correlation between university, voluntary hospital, municipal hospital, and the mental health services. It is hoped that the unit in Leeds will provide a pattern and afford experience for setting up similar units in the area.

Survey of Hospital Services in Northern Ireland.—It was reported to the Regionalization Council that, at the request of the Northern Ireland Regional Hospitals Council, this survey, now completed, was undertaken by the Nuffield Provincial Hospitals Trust and carried out by Dr. Stanley Barnes, Lieut.-Gen. Sir William P. MacArthur, and Dr. Duncan G. Leys. The survey followed the lines of those made in England and Wales. The report contains advice and recommendations as to what modifications or developments of the existing hospital facilities in Northern Ireland would be necessary or desirable to secure a co-ordinated and comprehensive hospital service. It also deals with special subjects, ancillary medical services, and types of hospitals. The Northern Ireland Regional Hospitals Council regards the report as a highly valuable and educational document which should provide a basis for planning the future hospitals and consultant services for the province. On the suggestion of the Minister of Health and Local Government for Northern Ireland, the report is to be made available to his Health Advisory Committee.

FINANCE OF VOLUNTARY HOSPITALS

More than usual interest attaches just now to the amount contributed by patients, by contributory schemes, and by legacies to the income of London voluntary hospitals. The statistical summary of the King's Fund for 1943[1] states that the figure from the first two at £1,722,921 was higher than any other source of income and was an increase of £235,239 over the previous year. Subscriptions and donations, central funds, and free legacies treated as income (the last-named being a source which it was thought would suffer in times of high taxation) amounted to over £1,500,000; but perhaps the most convincing way of putting all this is to say that 72.7% of the total maintenance income came from sources other than Government grants under the E.M.S. and public authorities. Though these figures are encouraging, the summary points out that the net result for the 169 voluntary hospitals which it covers was not so good as in 1942: maintenance income was £5,413,200, expenditure £5,311,900, leaving a surplus of £101,300 as against £246,800 the previous year. The total number of beds was 23,307, 206 more than at Dec. 31, 1942; the number open for patients rose from 16,245 to 17,679 during the year, the average number occupied daily being 11,496, as against 9,945. The duration of stay averaged 16.7 days for the general hospitals and 28.1 for the special hospitals. The summary concludes by saying that the figures show that the hospitals still largely depend, as they did before the war, on voluntary contributions. These are providing adequate support for current needs, but are leaving no margin for the cost of capital works required after the war to restore the hospitals to their normal activities.

[1] King Edward's Hospital Fund for London, Statistical Summary for 1943, 10, Old Jewry, E.C.2. Price 1s. (1s. 6d. post free.)

Nova et Vetera

THE ROYAL SOCIETY OF LONDON

THE FIRST 280 YEARS

Fellows of the Royal Society who have had a share in the Society's official business remember Sir Henry Lyons with gratitude and affection; his courtesy, lucidity, and great knowledge of the Society's affairs made the dullest financial details interesting. All regretted his failing health and admired the courage which enabled him to complete a history of the Society[1] that will at once become a standard work.

Sir Henry has based his account on official documents; although he sometimes gives pleasant vignettes of the men, he is concerned mainly with measures. Tastes differ—some readers may pass lightly over the numerous arithmetical statements; if they do, they will hardly understand how a small society which very soon after its birth had most of the "wits" against it, and for two centuries numbering among its Fellows only a minority of scientific men, became a great national institution.

Early Troubles of the Society

The procreation and birth of the Society are events familiar to most educated men; what is less well known is that it survived the diseases of infancy and childhood with difficulty. There were several reasons for this. The first—fatal to so many societies and journals—that the able and enthusiastic men who brought the infant to birth died or were taken up by other duties. The next, that the King's interest flagged, and as the Royal Society was not, and never became, an official body in the sense that Richelieu's Academy and the later academies were official, it had no Government backing. The third was that the Society aroused formidable jealousies. Of the scientific Fellows in 1663 more than half—26 out of 44—were medical men, most of them Fellows of the Royal College of Physicians. This preponderance of medical men in the Society continued for two hundred years; in 1800 medical men were still over 50% of the scientific Fellows, and had only fallen to 24.4% by 1860. A large majority of these Fellows were—to quote the son of a medical F.R.S. of our time who did not practise medicine—"*real* doctors with patients." The statistical fact seems to have aroused the suspicions of Dr. Baldwin Hamey—a famous name in the annals of the College of Physicians—that the College might have a rival, and he employed a certain Dr. Henry Stubbs to lampoon the Society. Much abler writers joined in: Butler (of *Hudibras*), Addison, Steele, Swift, and Pope all assailed the society of virtuosi with curious bitterness. Sir Henry Lyons charitably supposes that minute study of what seemed to ordinary men trivial matters may partly explain this bitterness. It might explain good-humoured mockery, but hardly ill temper. To a Pope or a Swift insistence upon accuracy of statement might have seemed a serious limitation on the work of literary men, if it became popular. As, however, they were far too intelligent to suppose it *would* become popular, the bitterness remains inexplicable. It is possible that the proportion of wealthy Fellows—never overwhelming, but for many generations substantial—excited jealousy.

It is clear that at the turn of the century the Society's future was gloomy; the average number of Fellows in 1671–5 was 215, in 1696–1700 only 125. This was a turning-point. The total did not regain the 200 mark until 1721–5, but from then there was a steady increase until the end of the old regime; the maximum was 766 in 1841–5. Since 1891 the strength has varied little; it has ranged between 449 and 475.

Reasons for Survival

The survival of the Royal Society was probably due to Newton's accession to the presidency in 1703 and to the fact that his successor, Hans Sloane, was also a strong president; for forty years administration was guided by men of great scientific ability, having prestige and willing to give much time to the Society's affairs. The Society, however, continued to have a large majority of Fellows who were not primarily investigators; down to 1830 at least two-thirds were of this class. If, as seems probable, Sir Henry Lyons counted all doctors of medicine admitted as scientific Fellows, he may have overestimated the proportion of scientific workers in a strict sense. One can identify in Munk's *Roll* 27 Fellows or licentiates of the London College of Physicians admitted in the first quarter of the 18th century who were also Fellows of the Society; of these only eight were men whose publications would clearly have entitled them to election as men of science. They are Mead, Arbuthnot, Drake, Douglas, Freind, Woodward, Jurin, and Stukely. Two others did write papers; to the remainder Munk does not credit any scientific publications at all. *En revanche*, there were probably among the amateurs many who did have a very serious interest in some kinds of research, so that the statistical ratio of two-thirds may fairly represent the facts. After all, in 18th-century England the number of men who devoted their lives to scientific research was small—too small for an exclusively scientific society to have survived except as a very modest affair. There would have been no money to finance expensive publications or experiments.

In the thirty-seven years following the retirement of Sloane, of the five presidents two were antiquaries, two serious astronomers and mathematicians, despite the fact that they were earls, and one was Sir John Pringle, a great name in the history of preventive medicine. The Society continued to grow and its influence to increase. In 1778 Joseph Banks was chosen, and continued in office for forty years; at the end of his, as some thought, despotic reign, revolt—to use Sir Henry Lyons's word—began. Banks was an opulent country gentleman, but a good deal more than a virtuoso; he not only financed scientific expeditions, he took part in them and was a very serious collector. One does not need to be a Lavater to infer from the portrait of Banks which hangs in the Society's apartments that he did not suffer fools gladly. An anecdote recorded by Sir Francis Galton in the first number of *Biometrika* suggests that Sir Joseph might be a little rough with people who were not fools. That he served the Society well and increased its influence in official circles nobody doubts, but his sympathies were not catholic and a change of outlook was desired. Banks probably realized this himself; for he recommended Wollaston to be his successor, and Wollaston, although an F.R.C.P., was a very "pure" researcher.

A Silent Revolution

Within the generation 1820–48 the structure of the Society was revolutionized, and, in our happy British fashion, without turmoil or violence. Under the Charters, the Fellows are omnipotent. They could a century ago, they could now, reject any recommendation of council and elect into the Society any persons, being British subjects, they pleased to elect. Actually the council was omnipotent then, and it is now. The revolution was effected by the simple expedient of bringing into the council a majority of scientific workers. The non-scientific majority acquiesced, and finally acquiesced in a limitation on the number of annual admissions, which would have the effect of virtually restricting the fellowship to research workers. The result was that before the end of the 19th century the rank of the Society as an order of scientific merit was finally established. In this century benefactions on a large scale have greatly increased its administrative responsibilities; in 1939 the invested capital of the General Purposes Fund and of twenty-four Special Funds exceeded £225,000, and that of the twenty-seven Research Funds was more than half a million. Of course, in comparison with quite small commercial undertakings the financial responsibilities are modest; still, readily to master the administrative business of the Society imposes a considerable sacrifice on men actively engaged in teaching or research; that it is efficiently done is creditable to the public spirit of those who accept office and serve on the council and committees.

Fellowship as Reward for Scientific Merit

The question is sometimes asked whether, in view of the increasing scope of scientific research, the method of choosing new Fellows does effectively reward or recognize scientific achievement. Hardly anyone doubts that when old-established branches of science are in question merit is well and promptly

[1] *The Royal Society, 1660-1940. A History of its Administration under its Charters.* By Sir Henry Lyons, F.R.S. (Pp. 354. 25s.) Cambridge: The University Press.

recognized. The fellowship includes many expert in these branches, and claims can be fully canvassed. But it may happen even in classical branches that representatives within the Society become few, and it must happen when subjects either really new or newly regarded as within the Society's scope are in question. Pantopragmatics, let us say, was once without the fold of natural knowledge; it was not natural philosophy. But the application of experimental methods or of a mathematical technique to the data of pantopragmatics might make the subject a scientifically honest woman, and so one or two pantopragmatists would enter the fold. But it would still be true that the internal power of appraising the merits of pantopragmatists would be restricted and judgment in the hands of one or two individuals. There is the further point that, when admission to a society depends on scientific merit, on achievement, the age at admission will tend to rise. In the old times, down to 1812, the average age at entrance was about 41, between 1873 and 1897 it was 44½, and between 1920 and 1938 47. The fellowship is getting older. The danger that the Society should consist of elderly notables is not yet acute, but will have to be faced. What further reforms may be needed is an important question but no part of a review of history.

We have given more space to this review than is customary, partly because the Society's associations with our profession have been so intimate: we should welcome an even fuller account of the personal relations with their colleagues of the many physicians and surgeons who were Fellows; something might be gathered from diaries and recollections in the 18th and early 19th centuries. But a stronger motive was to make manifest the way in which a small society by no means beloved by those who often have the reputations of their contemporaries at their mercy—popular and skilful writers—grew into a national institution. The triumph was due to common sense and mutual forbearance, qualities which have preserved our country in greater crises.

THE DISEASE THAT KILLED ROBERT BURNS

The careful scrutiny of much that has been said and printed about Burns's last illness fails to reveal a medical history that is reliable, or any but meagre information as to the course that the disease took, probably because his doctors were rightly silent about the matter.

Alcoholic excess and rheumatic fever, even an "accidental disease," have from time to time been advanced as the actual cause of his death, and at the early age, comparatively, of 37½ years; yet the evidence obtainable is—and all along has been—purely hearsay, usually allowed to pass without comment other than that Burns was "his own worst enemy." Even at this time of day, so far distant from the event, the evidence, entirely circumstantial and inconclusive, that one or other or these combined had slain him might quite as properly be denied as accepted. Though none knows, or ever knew, the truth as to the real nature of Burns's affliction, the unproved verdict has been copied from book to book about Burns and repeated by word of mouth with harping iteration, so as to be difficult to reverse or efface. It can be admitted that the poet's habits were no better than those of most men of the times in which he lived, though probably they were no worse—perhaps not as bad. Being endowed with the intellect and genius to write such enchanting poetry as he did, all eyes were on him, and he was expected to behave faultlessly—to be as a man apart, the paragon of good behaviour—while the conduct of those around did not much matter.

Burns's last long illness, extending over many months, gradually worsening, was certainly not the result of rheumatic fever. To modern medical thought and belief the description of the nature and course of his disease, scant as it is and necessarily would be, indicates that he suffered and died from subacute infective endocarditis—that microbic inflammation of the heart which has a usual fatal ending in septicaemia. In this condition a painful arthritis is not a rare complication. The anxiety and dreadful suspense that assailed the sick poet at the last would, more likely than alcoholism, dispose to the particular disease.

It is not to be forgotten that at the time of Burns's death (1796) the stethoscope had not been invented (René Laennec, 1819) and the clinical thermometer was not yet known (Clifford Allbutt, 1868), neither was the micro-organismal origin of disease (Joseph Lister, 1874). The popular belief that he died of drink and rheumatic fever cannot be supported, having no foundation in fact: it is a pure fiction. To the medical mind the story does not ring true. The related physical facts have been distorted: they have had a false construction put upon them, so that the inference drawn is untenable.

Based upon factual misinterpretation, perhaps chiefly from judging wrongly Burns's disease and illness by his known behaviour and habits, and by lending ear to any eavesdropper's tale about him, there had been shaped and created a crude and inexact diagnosis—one that became, "by the glare of false science betrayed," nothing more than a gossip's fable, which ought now to be confuted and consigned to oblivion.

Bournemouth. S. WATSON SMITH.

Reports of Societies

THIOURACIL IN THYROTOXICOSIS

At the last meeting of the Manchester Medical Society Dr. M. L. THOMSON read a paper on thyrotoxicosis and thiouracil. He described the experimental work on goitrogenic substances, and discussed the mode of action of thiouracil in cases of thyrotoxicosis. Treatment with thiouracil seemed to be symptomatic rather than curative, and the hope of a cure lay in maintaining the patient's health until the thyroid gland returned to normal. A table of the incidence of toxic symptoms in 109 published cases was shown; in this series there was one fatal case of agranulocytosis in a patient receiving 2 g. of thiouracil daily. Diagrams indicated the effect of thiouracil on the pulse, weight, B.M.R., and blood cholesterol in 13 cases personally treated over periods of up to 9 months. Three cases were submitted to operation: one because of rapid increase in the goitre in a girl aged 15; one because of neutropenia seven days after treatment with thiouracil began; and one at the patient's request. The other cases responded well to the drug but relapsed two to eight weeks after it was discontinued. Dr. Thomson said that during the first 10 days, when 0.6 g. of thiouracil was given daily, the patient should be in the ward, and frequent white-cell counts made. Later at least weekly attendances at the out-patient department were essential for white-cell counts, etc. During this period 0.2 g. daily was usually necessary until the patient's weight returned to normal. As a further maintenance dose 0.1 g. or even 0.05 g. daily might suffice. There were three cases of chronic auricular fibrillation, one being regularized by thiouracil. There were no toxic complications apart from one case of neutropenia, one transient maculo-papular eruption, two cases of transient itching of the skin, and one doubtful drug fever. The main field of usefulness for thiouracil seemed at present to be in cases judged unsuitable for operation or where the risk of operation was increased. It was felt, however, that groups of cases of all types should be treated with thiouracil at centres where facilities for control were available until the potentialities of the drug had been fully explored.

Prof. J. MORLEY said that at the moment surgical treatment appeared to give the best results. The objections to thiouracil were that it did not cure; the size of the goitre was increased, requiring more urgent removal; continued treatment was necessary; and there was the danger of producing agranulocytosis. He thought that the effects of thiouracil were slower than, and inferior to, those of iodine therapy in pre-operative treatment, and thiouracil gave rise to a troublesome increased vascularity of the gland. His operation results showed only 51 (2.4%) deaths in a series of 2,094. Mr. R. W. WYSE referred to the marked technical difficulties encountered at operation as a result of the increased vascularity after administration of thiouracil, in cases needing subsequent surgical treatment. Dr. J. F. WILKINSON, describing some of his results in a series of cases treated with thiouracil, said that treatment should be given only in the hospital or clinics where adequate control could be maintained. Good results had been noted in cases unsuitable for *x*-ray or surgical treatment or where these had not eased the condition. Dr. R. ELLIS had noted vomiting after the use of thiourea, with immediate relief on cessation of the treatment, iodine subsequently producing the normal response. One patient had remained well for three months after initial treatment with thiouracil, but had then had a sudden recurrence of thyrotoxic symptoms which failed to respond to further thiouracil medication.

Correspondence

Supplement to Breast-feed

SIR,—In your issue of Nov. 25 (p. 707) Dr. A. Bonnard asserts that there is a prevalent deficiency of protein in human milk. She bases this statement purely on impression and gives no facts to support it.

Dr. Bonnard then proceeds to give a description of the clinical picture to which the alleged deficiency gives rise, and recommends cow's milk as a remedy. In my opinion to give supplementary feeds to children whose mothers have an "adequate or even abundant supply" is a dangerous practice, because, as Dr. Bonnard herself found, "too often such babies are soon weaned." I think Dr. Bonnard will agree that, if breast-feeding were more conscientiously practised infantile morbidity and mortality would be reduced, and I would like to draw her attention to the letter by Dr. H. E. Harding which follows her own, and which concludes with the following words: "I have yet to perform a necropsy on a breast-fed infant who has died of D. and V."—I am, etc.,

Birmingham. A. M. NUSSEY.

Diarrhoea and Vomiting of Infants

SIR,—An outstanding clinical feature of epidemic diarrhoea and vomiting of infants is a condition of shock, comprising rapid weak pulse, pallor, diminished muscle tone, and haemoconcentration, as well as acutal diarrhoea and vomiting. A subnormal temperature is common in the absence of bronchopneumonia, mastoiditis, or other localized inflammation. Shock in fatal cases is evidenced post mortem by oedema of kidney, brain, and other organs, brought about by increased capillary permeability. Haemoconcentration, due to the increased capillary permeability of shock, is usually accentuated by excessive loss of water from the body through the vomiting and the diarrhoea. Shock and dehydration are then associated, though not identical, features of the disease. Occasionally, however, shock and death occur without vomiting, diarrhoea, or dehydration, as in the cholera sicca of vibrio-infected adults.

In "white scours," a similar condition of calves, *B. coli* producing a histamine-like substance was found post mortem in the blood and internal organs of 37 out of 100 cases by R. Lovell, other organisms being present in most of the other cases. In the light of this result, I have recently examined specimens of blood and bone-marrow fluid taken from 12 infants acutely ill with diarrhoea and vomiting. Injected into sterile broth at the bedside, with due precautions to avoid skin contamination, all specimens gave growths of cocci or coliform organisms. The following bacteria were found among the 12 cases from which specimens were taken, some specimens giving mixed growths:

Staphylococcus albus	9 cases
Staphylococcus aureus	3 cases
B. faecalis alkaligenes	4 cases
B. coli	2 cases
Streptococcus	1 case

These findings, together with those reported by Felsen and Wolarsky and other investigators, seem to explain the usual absence of pathogenic organisms from the stools. They suggest that infantile diarrhoea and vomiting is a non-specific systemic infection by organisms which are pathogenic for infants under certain conditions, though not necessarily for adults. Apparently an infant's barrier tissues are less resistant to bacterial invasion than those of adults, especially when artificial feeds are given. Hence certain strains of so-called non-pathogenic organisms can sometimes gain access to the blood stream, where they apparently liberate shock-producing substances. The fact that "non-pathogenic" bacteria can form shock-producing compounds has been demonstrated by E. O. Jordan, Theobald Smith, E. F. Gale, and other workers.

We have no reason to suppose that the gastro-intestinal tract is always the source of the organisms which invade the blood stream. The systemic infection may conceivably originate in a pulmonary infection. Or, as P. W. Leathart has suggested, organisms may pass along the Eustachian tube to the inner ear and mastoid, whence the infection could spread into the blood stream. Whatever the mode of spread of the infection the frequent post-mortem finding of a pale "wet flannel" intestine should be sufficient to rule out "enteritis" as an aetiological explanation of the disease.

Why a blood infection of infants should cause shock instead of the pyrexial reaction typical of an adult septicaemia remains an open question, connected perhaps with an infantile failure to form antibodies. It is of course possible that some epidemics of D. and V. may be caused by a virus, which as a foreign protein would be no less capable of causing shock than bacteria disintegrating in the blood stream. The nature of the infective shock-producing organism may be revealed by experimental chemotherapy, with a compound bacteriostatic to all those organisms already found in the blood. A new compound of this character will be tested clinically in the near future.

I am much indebted for clinical material to Sir Allen Daley, also to Dr. W. H. Kelleher, medical superintendent of the Western Hospital, and Dr. J. B. Ellison of the Grove Hospital, who provided the specimens of blood and bone-marrow fluid. For laboratory facilities I am most grateful to Dr. W. P. Greenwood, medical superintendent of the Bethnal Green Hospital, to Dr. J. M. Alston, and to Mr. R. Rodnight for his invaluable technical assistance. Part of the work has been done with the help of a grant from Messrs. Roche Ltd.—I am, etc.,

R. L. WORRALL, M.B., CH.M.

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Sensitization to Sulphonamide Therapy: Circulatory Reaction

SIR,—Circulatory symptoms in a person susceptible to sulphonamides may be extremely severe. I did not attend the patient, a medical woman, here described, but her symptoms were detailed by herself and corroborated by her husband, a medical man.

She has a low blood pressure, about 110 S. at the age of about 40, and she is subject to slight attacks of paroxysmal tachycardia. Her circulatory system is thus not quite normal, but she is a vigorous person, able to look after a household and a practice and numerous outside interests. She has also "idiosyncrasies" to both cocaine and quinine.

About six years ago, shortly after its introduction, she took two tablets of prontosil for influenza, which caused such extreme malaise that she would not take any more. There were no cardiac symptoms, but it is assumed that she was then "sensitized" to the drug.

Five years later she used, one night, a sulphathiazole jelly to smear on the nasal mucous membrane, using only so much as adhered to one finger-tip. There were no immediate symptoms, but an hour later she awoke from deep sleep with extreme uncountable tachycardia and a broken rhythm, and repeated brief syncopal attacks. This went on for two hours, and she expected to die. She had cardiac pain, widely dilated pupils, dry mouth, and difficulty in speaking. After a time the symptoms recurred with intense excitement; next day there was great urinary frequency, and she was unable to sleep till 4 p.m., and then had "sleep-starts," presumably due to extrasystoles. She was very ill for four or five days, with B.P. 90/60, but a week after the attack began the electrocardiogram was normal.

One year later sulphanilamide powder was applied to an infected abrasion, less than an inch square; this was strapped in place at about 9 p.m. An hour later she woke with tachycardia and a dry mouth: the strapping was removed, and the symptoms ceased in an hour. A month after this she put in her mouth a half-tablet of sulphapyridine in mistake for medinal. She recognized the difference in taste, at once spat out the substance, and gargled, and while doing so had minor syncopal attacks, dry mouth, excitement, dilated pupils, and tachycardia.

She told me that she had searched the literature available to her for similar cases, but without success.

The symptoms appear to be circulatory reactions to these valuable drugs in a sensitized person who has a minor circulatory abnormality. They are most alarming, and it may be as well to be warned against them. Drinking glucose solution and brandy has proved the most effective treatment of any tried.—I am, etc.,

Dunedin, N.Z. D. W. CARMALT-JONES.

Sulphonamides in Infective Hepatitis

SIR,—I feel sure that the following notes on a case of infective hepatitis will be of interest. On Oct. 14, 1944, a subaltern was admitted to hospital with a typical history and subsequent typical clinical picture of infective hepatitis. His was a mild case and the urine became free from bile pigments and bile salts on Oct. 23. In a few days he was to have been sent to a convalescent depot for 14 days, but as he now had secondarily infected tinea pedis he was referred to the dermatologist, who gave a sulphonamide. This was very quickly followed by the reappearance of bile pigments and bile salts in the urine, and in large quantities. Sulphonamide was stopped at once, and the patient treated with: (1) rest in bed and (2) a high-protein, high-carbohydrate, high-vitamin, fat-free diet of high calorific value; sod. bicarb. one teaspoonful thrice daily at least; multivite and ascorbic acid tablets; fluids *at lib.*; saline aperients when necessary. This time the urine took 3 to 4 weeks to become normal, but residual icteric staining of the sclerotics is marked.

So-called relapses of infective hepatitis should really just be called a recrudescence of jaundice due to bad treatment, the effect of chill or superadded infection, or the result of the effect of such potential hepatotoxic substances as alcohol, sulphonamides, or arsenic, etc. I would suggest that, just as alcohol and arsenic, etc., are forbidden for at least six months after an attack of infective hepatitis, sulphonamides should also be forbidden for a similar period of time. In cases where another disease process, due to an infecting agent which is sulphonamide-sensitive, is superimposed on an attack of infective hepatitis—present or recent—I would suggest that penicillin, essentially a non-toxic therapeutic agent, should be given instead of the sulphonamide in the requisite case.—I am, etc.,

J. MACKAY-DICK,
Major, R.A.M.C.

M.E.F.

Incidence of Peptic Ulcer

SIR,—I was interested in Dr. Ross's letter (Dec. 2, p. 734) as only last week I had gone into figures of my peptic ulcer patients and found identical percentages of proved ulcers. I think another 2% could be added for gastritis and potential ulcers. I had been having a discussion with the M.O. of a large local factory after a patient had told me he could not get any special food at his works canteen. The M.O.'s reply was that in his factory ulcer cases were allowed special diet, but out of 2,000 employees only 6 had taken advantage of the light food, though there were prominent notices in the canteen. Could not an official letter be sent to all factory managers telling them of the advisability of supplying special food? The cases are there.—I am, etc.,

J. J. HORWICH.

Edgware.

Chronic Duodenal Ulcer and Perforation

SIR,—Major-Gen. Ogilvie's statements regarding duodenal ulcer at the recent meeting of the R.S.M. conflict greatly with one's own experience in general practice. Of the last seven cases of perforation of duodenal ulcer five, including my own, had been under treatment for periods of 2 to 8 years, and the other two, after perforation, admitted to a history of "indigestion" of 3 and 4 months' duration respectively. This surely disproves the statement that the chronic ulcer does not perforate.

The alleged "silent" history of the bleeding ulcer is open to considerable criticism. Of the last eight "catastrophes" of this type that have occurred in my practice four had previously had a typical history of duodenal pain—too high a proportion to be merely a coincidence.

Medical treatment of duodenal ulcers probably provides the average G.P. with more disappointments than any other common condition that he is called upon to treat. Rest is undoubtedly the most important factor and the most difficult to obtain. This probably accounts for the frequency of relapses. The position was once summed up very accurately by a patient who said: "If I could spend six weeks in bed every six months I should be all right, but I can't afford it."

The extent to which the surgeon should deal with the duodenal ulcer appears still to arouse considerable discussion. Apart from those cases that suffer repeated haemorrhages I would suggest that a good guide is the degree to which pain interferes with sleep. Pain can be avoided, even in severe cases, during the daytime by frequent feeds and alkalis, but nothing makes a patient more incapable of carrying on his daily work than nights that are rendered almost sleepless by bouts of pain that awaken him every hour or so. The relief that a subtotal gastrectomy brings to these cases is indescribable. I know: I've had one.—I am, etc.,

O. E. L. SAMPSON.

Bristol.

Episiotomy

SIR,—May I thank those gentlemen who have troubled to write concerning my article on episiotomy, and state that adequate answers to all the points raised would fill a whole journal, and therefore only those of *practical* importance will now be mentioned.

1. I cannot agree with Mr. Ivor Hughes's suggestion (Nov. 25, p. 705) that the incision should be performed during uterine relaxation. For reasons stated in the article I consider it most important that it should be performed during the height of a contraction.

2. The method of repair and the suture material used were not mentioned because there are many satisfactory ways of repairing the wound, but I agree with Mr. Hughes that it should be repaired in layers, after which I consider silkworm-gut sutures through all layers help to prevent the very thing he emphasizes—namely, "pocketing of blood clot."

I will endeavour to produce diagrams for Mr. Eric Coldrey (Dec. 2, p. 735) at a later date, when my new convex glasses arrive!

3. Mr. T. N. A. Jeffcoate (Dec. 2, p. 734) has written a masterly account of the various types of vaginal herniae, the details of which I shall enjoy discussing with him when the opportunity presents itself. Here I can but state that I am glad he agrees with my main theme—namely, that timely episiotomy will prevent a large amount of maternal and foetal injury.

4. I assure Mr. Coldrey that I wish my list of indications for episiotomy to be taken in all seriousness: not one case would I remove from it. Both to him and to Mr. Hughes I am grateful for mentioning the midwife, although neither of them agrees with me that she should be allowed to perform episiotomy. Mr. Hughes states that in all the cases in my list the midwife should call in "medical aid." This is not so. Perhaps he thought I was discussing the breech with extended legs in a primigravida; no, I include the flexed breech, and if the midwife is to continue to be allowed to deliver such a case on her own (and with the greatest respect for her, I do not think she should), then I maintain she should be permitted to perform the comparatively simple operation of episiotomy in order to help her in the difficult one of breech delivery. Mr. Coldrey dislikes the idea on account of the extra work involved for the doctor in suturing the wound for a meagre fee? The remedy for this is obvious.

Finally, a word to Mr. William Hunter (Dec. 2, p. 735). I apologize that I missed his and Mr. Douglas Millar's articles on the same subject, and assure him that I lay no claim to originality, having long ago decided that in order to consider oneself original one must read nothing at all. I was merely describing the method which I have found to be most advantageous.—I am, etc.,

J. D. S. FLEW.

Freeland, nr. Oxford.

Incidence of Perineal Tears

SIR,—The article by Dr. J. D. S. Flew (Nov. 11, p. 620) and the letter from Dr. H. E. Humphreys (July 29, p. 160) with several intervening letters concerned with perineal tears and episiotomy have very rightly drawn attention to certain gross irregularities in the approach to the part of a confinement most likely to cause permanent post-natal disability. It is a serious reflection on the obstetrical work in this country that such a casual approach is made to this by so many practitioners, and that the production of a live infant is regarded as the only aim in a confinement. A combination of ignorance and modesty has led to a situation where the average woman bears her post-natal cross nobly, but it is high time that she realized that much of her suffering is avoidable.

In twenty years' experience of practice I have been profoundly impressed by the small number of medical aids requested for perineal tears in domiciliary practice. Dr. Humphreys has done something to draw attention to this, and I can recall a similar state of affairs where the nurse "tied the legs together" as there was "only a small nick."

As medical officer to an emergency maternity home since 1939 I have had an opportunity of making some comparative estimation of the frequency of genuine perineal tears, and I am appalled at the figures by comparison with outside practice. Out of a total of 536 cases there were 88% of normal deliveries with 8% of forceps deliveries and a perineal tear rate of 39%. I am entirely satisfied with the efficiency of the nursing staff, who deal with the normal cases and only call me for perineal sutures or other abnormalities. Episiotomy is not regarded as a matter for the nursing staff nor is it regarded as a reason for medical assistance in the eyes of the county council. On the other hand every tear is dealt with and carefully sutured under local anaesthesia. In private practice calls for perineal tears are so infrequent as to be beyond recollection, so I am convinced that Dr. Humphreys is right in suggesting that "there are a considerable number of tears in domiciliary maternity work which are left without attention."

It is not my intention to criticize the magnificent work performed by district nurses: their figures with regard to obstetric morbidity put most practitioners to shame; but the post-natal perineum is a definite blot on an otherwise efficient service. The liability for this state of affairs is largely with the central nursing authority and with the general discouragement of the use of the "medical aid." First of all district nurses should be encouraged to use this, and too much unnecessary fuss should not be made with searching inquiries whenever any abnormality presents itself and a sense of guilt imposed on the offending nurse.

I do not agree with Dr. Flew's suggestion that nurses in general should be encouraged to perform episiotomy. The trained sister in a maternity home should definitely be allowed and encouraged in this respect, but the average district nurse is without the backing of a doctor with special experience of obstetrics and too dependent on the family doctor of the patient to render either the episiotomy or the subsequent suturing a matter to be undertaken lightly.—I am, etc.,

Bishop's Stortford, Herts. R. P. GAMMIE, M.D., D.R.C.O.G.

Nursing of Tuberculosis

SIR,—Dr. Snell's comment on your annotation on the nursing of tuberculosis (Oct. 28, p. 569) is timely, and some statements in the N.A.P.T. bulletin for December, 1944, make it the more urgent that the known facts should be publicized widely.

A recent report by Childress (*Amer. Rev. Tuberc.*, 1944, 49, 6, 501) points clearly to the much greater risk of development of tuberculosis among those who are exposed to intimate contact with the disease. The most important features from this paper are: Total number of employees, 5,039; exposed to infection, 2,092; developed disease, 39, or 1.8%; not exposed to infection, 2,947; developed disease, 6, or 0.2%.

The paper quoted gives much useful information and a good survey of previous work. I should like to recommend it to those who believe that the nursing of tuberculous patients involves no special risk.—I am, etc.,

London, W.1. ALEC WINGFIELD.

Absence of Surgical Shock in Epileptic

SIR,—I have had charge of a recent surgical case which, I think, gives striking support to Slome and O'Shaughnessy's theory of the all-importance of the "nervous factor" in surgical shock.

An epileptic, aged 45, had a major fit while working in a goods yard, and was run over by a shunting railway wagon, sustaining severe crushing and laceration of his right upper arm. He was admitted to hospital half an hour after the accident, where he received routine first aid consisting of morphine, warmth to the body (but not the damaged limb), and fluids by mouth. Circumstances prevented me from seeing him until four hours later, when I found him in a dazed post-epileptic state, with no memory of the accident or realization that he had a serious injury. There were no clinical signs of surgical shock. The skin was warm and dry, the pulse slow, regular, and full, and the blood pressure 120/70. No tourniquet had been applied, and there seemed to have been no serious loss of blood.

At operation, under gas-oxygen-ether anaesthesia, the lower arm was found cold and bloodless, all the muscles of the upper arm extensively lacerated, and the upper half of the humerus crushed. The main vessels had been divided and had retracted, but all three main nerve trunks were apparently intact. Amputation was carried out by disarticulation at the shoulder-joint, as a longitudinal split of the humerus had extended as far as the articular surface. After a careful toilet and sulphanilamide dusting, the wound was closed with drainage. No shock appeared, healing was by first intention except for the evacuation of a small sterile haematoma, and the patient was up in a fortnight. There was a remarkable absence of pain and the common unpleasant sensations referred to the missing limb. The man is an intelligent and co-operative subject, and by no means of the dull subnormal mentality sometimes found in epileptics.

I think the following inferences can be made: (1) That the absence of shock was due to insulation of the brain from centripetal nerve impulses by the major epileptic fit. (2) That if the absorption of toxins from damaged tissue had been a factor of importance in the causation of shock there would have been source and opportunity for such toxins to have reached and affected the brain centres after the epileptic insulation had worn off. (3) The unusual absence of subsequent pain and referred sensation makes one wonder whether these symptoms when present may not be due more to cortical hypersensitization by abnormal nerve stimuli than to nerve trauma at the site of the injury.—I am, etc,

Beccles, Suffolk. C. GRANTHAM-HILL.

Induction Techniques with Oxford Vaporizer

SIR,—Over an experience covering a considerable number of cases it has become apparent that a simple, easy method of induction for use with the Oxford vaporizer is needed. The accessory ethyl chloride bag supplied with the machine is not only somewhat cumbersome and complicated, but, in the hands of the uninitiated, slow and wasteful—important factors in war surgery in the field. I would suggest two modifications which in practice have proved very useful.

1. Avoid pentothal for induction. Apart from its tendency to respiratory depression, a rapid increase in ether concentration may easily provoke an acute prolonged glottic spasm, which may become quite alarming. On the other hand, if the ether is given too slowly, waste of valuable operating time or, worse still, vomiting of undigested food and drink is apt to occur, and this may well give rise to serious immediate or late after-effects. Instead of pentothal I prefer hexobarbitone given fairly slowly till the pupils are fixed and contracted. The dosage is about one and a half times that of pentothal, and 0.5 g. or more may be necessary. Both respiratory depression and tendency towards laryngeal spasm are far less, and the ether anaesthesia "takes over" from the hexobarbitone much more smoothly. Shocked patients, I find, take it well.

2. If ethyl chloride induction is preferred, a useful and simple method is to place a small gauze swab into the facepiece, spray about 10 c.cm. of ethyl chloride on to it, and apply the mask till regular deep respiration occurs. The swab is quickly removed and then 5, 10, 15% ether vapour is fairly rapidly given in succession, the bellows being left open. Light surgical anaesthesia is established in about 5 minutes and an abdominal operation can be easily begun within 10 minutes.

The above techniques have been used on numerous occasions for all types of cases with eminently satisfactory results.—I am, etc.,

D. HEWSPEAR,
Lieut., R.A.M.C.; Graded Anaesthetist.

The Swab in Doubtful Cases of Diphtheria

SIR,—I am surprised and pained to see my old friend Dr. Guthrie Badenoch in the ranks of the unrepentant swabbers (Nov. 18, p. 674). The practice he advocates is no doubt useful and may even be reasonably safe in his experienced hands, but the young and untried doctor who follows his example is courting disaster. Many lives have been lost through waiting for the result of a swab, and not a few cases of clinical diphtheria yield negative cultures on at least one occasion.

I have had no reason to modify the opinion which I expressed in your columns some years ago—that doubtful cases should be given an adequate dose of antitoxin or sent to hospital for observation. If it is said that many parents will not allow their children to go to hospital unless a swab has first been taken, my answer is that the general practitioner, among others, should help to lead his patients out of the dark shadow of ignorance. But he himself must first see the light.—I am, etc.,

Rush Green Emergency Hospital, Romford. E. JAMES.

Hypopyon Ulcer

SIR,—I have not noticed any record of the treatment of hypopyon ulcer with the "sulpha" drugs, and therefore send you this short case report.

A female patient had complained of intense ocular pain for about a week before calling me in. There was a linear ulcer of about 3 mm. long just below the line of a collection of pus visible in the anterior chamber. There was also considerable conjunctivitis. After four days' treatment with sulphathiazole (beginning with 2 g. and then 1 g. every four hours) the pus had disappeared. As there was still some injection of the conjunctiva I then (and only then) prescribed a silver preparation. In two days the eye was perfectly clear, and quite normal except for very slight dilatation of the pupil. The pain was relieved after the first twelve hours of the treatment, and very little indeed was felt afterwards. I cannot say what bacteria were responsible for this inflammation.—I am, etc.,

Coldingham, Berwickshire F. O. TAYLOR.

Enuresis in the Army

SIR,—I wish to thank Mr. Winsbury-White for his letter (Oct. 21, p. 542) correcting any misunderstanding or misquotation of his findings. I am not able to refer to our files, but I am of the impression that his more recent article was not available when this paper was written.

In the 130 cases in which cystoscopy was done there was no report of any diseased condition of the bladder or urethra. It was assumed that the urologist would have examined both if he thought it necessary, but, as this was not specifically asked for, there may have been an oversight in the examination. It, as stated, was assumed that any case of urethritis would not be likely to be referred to us for treatment. However, this is a point well worth further investigation.

Our paper was intended as a preliminary report, but Service conditions have made it impossible to follow up the work as planned. It is quite evident that other information is needed. Cystometry, after bladder control is established, and the effect of discharge from the Service on these cases are two very important observations which need to be recorded.

With regard to treatment in the Army I should like to stress very strongly the final paragraph in our conclusions (Oct. 7, p. 465). Cases should not be sent to a psychiatric hospital unequipped to do cystometric readings until a full physical investigation, including cystometry, has been done, and then only if there is evidence of an associated psychoneurosis.—I am, etc.,

P. L. BACKUS,
Lieut.-Col., R.A.M.C.

Tapeworm in Trout

SIR,—A preliminary note by Dr. M. D. Hickey and Mr. J. R. Harris in the *Journal* for Sept. 2 (p. 310) was followed by letters on this subject from Mr. K. Unsworth (Sept. 16, p. 385) and Dr. Hickey (Oct. 7, p. 482). Prof. J. B. Duguid and Miss E. M. Sheppard, at Cardiff, are engaged in investigations on the same problem. No determination of the species of *Diphyllobothrium* involved has yet been offered, but Mr. Unsworth has suggested that at Cardiff two species may have been present, while Dr. Hickey has suggested that the Dublin form is different from that at Cardiff. All these workers have very kindly sent me specimens of the worms obtained by them, and it seems possible that some confusion, and even disagreement, may be prevented by a brief statement of the conclusion arrived at by comparison of all the material.

As stated by Dr. Hickey and Mr. Harris, they found natural infections with adult *Diphyllobothrium* in several species of gulls and a cormorant. On examining specimens from these birds I formed the opinion that those from gulls all represented one species, and those from the cormorant another. Further, on comparing adult worms obtained experimentally in mammalian hosts by all the workers, I found in all of them strong resemblances to Dr. Hickey's species from gulls. I am therefore of the opinion that in their experiments all the investigators were dealing with a single form, which is very probably an old but little-known species, *D. dendriticum* (Nitzsch, 1824), normally a parasite of gulls. Certain slight differences in the experimentally obtained worms, as compared with those from gulls, may, I think, have resulted from their development in abnormal hosts (mammals).—I am, etc.,

Department of Zoology,
British Museum (Natural History), S.W.7. H. A. BAYLIS.

Artificial Insemination

SIR,—A lay observer reading some of your correspondents on artificial insemination might be pardoned for imagining that the profession was about to deal with the falling birth rate by mass insemination of the female population. Such, we may inform him, is not the case; the proportion for whom it is contemplated is exceedingly small. Further, we should make it clear to him that it is only extramarital insemination which is in question—at least I presume so, for the point has not so far been made clear in the correspondence that I have read.

I think we are possibly in danger of allowing cant to cloud the issue here. Surely extramarital artificial insemination is not, any more than any other medical matter, a subject for "emotion" either pro or con. It is a new method of treating the effect of male sterility on the wife, and should be assessed like any other form of treatment. If, in the estimation of the medical attendant, a sterile marriage is likely to be improved or made happier by such procedure then it is his duty to advise it; if, on the other hand, from his knowledge of the husband's mentality he considers that in the long run more harm than good might result, then he should oppose it. It is certainly no part of a practitioner's duty to express or try to impose his own personal moral or religious scruples upon his patient.

Those who are so impressed with the value of the family as a social unit have obviously not reflected that without adoption or extramarital insemination the family would be non-existent in a number of cases of children-loving couples. Perhaps they would prefer divorce and remarriage with a fertile partner.

I am sure that the profession as a whole, as long as it is permitted to think and act for itself, will continue to do what it considers best for its patients.—I am, etc.,

London, W.1. KEITH DUFF.

SIR,—Surely those who should have the right to decide for or against artificial insemination are the woman concerned (and her husband if she has one) and the nation, via the Government, because there are social implications of its use.

It would be a gross breach of the liberty of opinion of the citizen for the medical profession to forbid artificial insemination. A doctor is under no necessity to artificially inseminate anyone if he does not want to, but for him to try to prevent his colleagues from so doing is to be as intolerant of others' rights as were the priests and ministers of former centuries. The protests on religious grounds remind me of the protests made when chloroform was first used in childbirth.

It seems likely that the Government would not legislate against a method of increasing the population which does not involve assault, though it might restrict it to married women alone. It might, however, be desirable to have some legislation to regularize artificial insemination and to protect the medical man from lawsuits.—I am, etc.,

EDWARD J. R. PRIMROSE.

SIR,—Dr. McKinney states that artificial insemination is not "a mere obstetric matter," but it does not follow that moral laws applied to it by religious bodies are desirable. Doctors are accustomed to check their own laws by observation of results and to change them according to advancing knowledge. Religious laws, on the other hand, owing to their Divine origin, are difficult to change once they have been stated, however much knowledge or social requirements may alter and whatever

results on vital human relations may be seen to follow their observance or non-observance.

Dr. Malleson and Dr. Dixon have each reported a case where artificial insemination seems to have had very good results on human relations, and I have seen no adverse reports on similar cases in this correspondence. Though no doubt further observations are required, I find these facts much more impressive than a dogmatic decision on the subject made by the Roman Catholic Church in 1897, founded apparently on other dogmatic statements of more remote date and never checked by observation of results at any time.—I am, etc.,

London, N.W.1. G. A. BACK.

SIR,—I have been interested to observe in many of the letters how absolute is the attitude of many of your correspondents. That doctors must have an opinion on the ethical aspects of artificial insemination is certainly true, for it is they who will have to do the work. But they should at the same time realize that ethics are a sociological matter and that they should regard them through sociological spectacles to correct any professional astigmatism they may have. In attacking sociological problems the aim is to fashion a smoothly functioning society: to achieve this, some sacrifice of ethics may have to be made. It is rare for the tolerant person to find none of his ethical concepts abused by his fellows.

The law recognizes that murder is a crime of the first magnitude, but it also allows that extenuating circumstances may be so important that the full retributive power of the law is not imposed. Can we not adopt the same attitude—that, in general, the practice of artificial insemination is not ethical, but that extenuating circumstances may justify its use?—I am, etc.,

University College Hospital, W.C. LESLIE FORD.

Medicine and Politics

SIR,—It was with great pleasure that I read the excellent letter from Dr. Allan A. MacDougall (Nov. 11, p. 639) on the vitally important relation of medicine to modern politics. I whole-heartedly agree with him in his rejection of the Socialist thesis of "national servility" and his equal insistence on the now urgent need for doctors to take an active interest in politics in order to defend their liberty both as professional men and as private citizens.

For the very real crisis raised by the Government's proposals for a National Health Service is not, unhappily, one of merely medical interest; our profession is only the first small sacrifice on the altar of the State planners, the ritual of whose religion will only be completed by the final holocaust of all human liberties. In casting our profession as a sacrifice to the Socialist wolf, our so-called individualist M.P.s might do well to remember that our pre-war experience in the appeasement of an authoritarian regime is not exactly reassuring. As Dr. MacDougall points out, "All our existing political parties appear at present to be united both in their hatred of liberty and in their approval of State control of medicine." That is perfectly true, but I think there is an explanation for it. The development and over-centralization of modern industry have been such that only two loud "group voices" can be heard in the political arena—the voice of "Big Business" and the voice of the "Propertyless Man." The raucous roar of these two groups drowns the timid whispers of millions of humble men. These millions believe in individual liberty, they resent the daily and hourly State interference with their lives and homes. But because they make no great material demands they lack a political channel of expression. The powerful industrialist and financier wants to own and dominate them, the power-seeking Labour leader wants to own and dominate them, but no political party wants to leave them the only thing they ask—their right to organize their own lives.

Newcomers to politics, apparently faced with the choice between the private cartel and the all-powerful State, might well be forgiven if they try to come to terms with the latter. And it is precisely into this error that the profession is tending to fall. Discussions on 90% versus 100% not only blind us to the main principle of freedom versus slavery but not unnaturally leave the lay public with the impression that the only principles in which we are interested are the enrichment of our own pocket and a "freedom of choice" limited to the upper 10% of society. If we base our hope of public support on such proposals, then indeed our case is lost.

Let us face facts. The vast majority of doctors earn their living by attending to the needs of millions of the poor and the humble. These needs are not solely confined to the repair of ill and broken bodies. Every day the general practitioner, the hospital physician, and the hospital surgeon spend a considerable part of their time in helping and advising poorer patients in their claims and disputes with large private corporations, public bodies, and the State itself. When the State is the whole-time employer of all doctors, what degree of trust will the poor man place in his doctor in any dispute with the all-powerful State? It is possible that if his medical adviser were a man of the very highest integrity and had an alternative employer to whom he might offer his services or had independent means, the poor patient might still be justified in giving his trust. Unhappily, in the servile State which will inevitably arise out of the present Government scheme no other employer will be available. When you have only one employer available you must either starve or do what you are told. The State will nourish your body and keep your conscience.

In such a state of society there will still be the comparatively rich and the very powerful. They will be known by other titles, of course. The poor and the humble will be the real sufferers, for their spiritual debasement and lack of defence against oppression will greatly exceed that existing in our present imperfect social system. Independence of judgment is an essential quality of the good doctor, and that quality is surely to be found in men of varied political opinions. Our Socialist colleagues may one day rebel against their State employer. Even with the gift of tongues, however, their chance of alternative employment will be very remote in an all-totalitarian world.—I am, etc.,

Barrow-in-Furness. L. P. GRAY.

Demobilization and the E.M.S.

SIR,—Despite the inevitable delay due to distance we feel that the letter by Dr. Rutherford (Oct. 7, p. 482) suggesting that E.M.S. service should count towards eventual demobilization from the R.A.M.C. cannot be allowed to pass unanswered. In our experience many men who have recently joined the R.A.M.C. from the E.M.S. are having the best of both worlds. During the years of E.M.S. service the younger men have had the opportunities to obtain postgraduate qualifications, and on joining the R.A.M.C. their qualifications have placed such men in higher ranks and grades than their contemporaries who have been over-seas during this period. Even the men who have not taken advantage of such opportunities have remained in contact with civil hospital work, and had access to books and medical societies. Over-seas the men have to work either alone in their specialties or in such small communities that profitable discussion is difficult. It is commonly agreed that under these conditions efficiency is liable to fall off. We are very conscious of our handicap, and feel that those who do not suffer from it should "soldier on" while we rehabilitate ourselves to civil life.

One fact is indisputable. The men in the E.M.S. were at home (in the sense in which we talk of "going home") during the years when families at home were in danger, but many E.M.S. men have married and produced families during the war and watched them grow through important years of their life. This has been denied to all in the R.A.M.C. with service abroad, many of whom have, for over four years, had no contact with their families except by correspondence, which sometimes, through no fault of their own, has been most spasmodic and subject to considerable delay. Many officers, too, over the age of 28 have been unable to marry, and have now reached the age of 34 without any possibility of so doing. Many others have witnessed their existing homes disintegrate under the impact of prolonged separation and the peculiar circumstances of life during wartime in England.

Surely these facts are more worthy of consideration than "who treated the Dunkirk casualties." We cannot see one single reason why civil service should count as military when the time eventually comes for us to be released from the R.A.M.C.—We are, etc.,

T. G. ARMSTRONG, Major, R.A.M.C.
S. A. MADDOCKS, Major, R.A.M.C.

Obituary

Dr. CHARLES TIDBURY STREET, who died on Oct. 23, aged 87, was the son of the Rev. B. Street, Vicar of Barnetby-le-Wold, Lincolnshire, and from Grantham Grammar School went to St. George's Hospital, taking the M.R.C.S. in 1883 and the L.R.C.P. a year later. At St. George's he held the post of assistant medical registrar, and played rugby football for the hospital when it won the United Hospitals Cup. He became resident clinical assistant at Bethlem Hospital under Sir George Savage, and afterwards senior assistant medical officer at the Lancashire County Asylum, Prestwich. Then for thirty years he was medical superintendent of Haydock Private Mental Hospital. Dr. Street was a very able administrator, always on the look-out to promote the happiness and comfort of his patients. He often spoke at medical meetings in Liverpool and contributed to the specialist journals. A very keen Yeomanry officer, he was stationed during the last war on the East Coast and in Ireland with the rank of major. His favourite diversion was hunting, and he was out with the hounds on his eightieth birthday. He married the eldest daughter of G. W. Mould, M.R.C.S., of Cheadle Royal Hospital. Dr. Street joined the B.M.A. in 1885.

Dr. R. E. E. SOUTH died at his home in Boston, Lincs, on Oct. 24, after a short illness. He was born at East Peckham, near Maidstone, in 1865, and was the son of the Rev. R. M. South, Vicar of Romney. He received his early education at Cranbrook Grammar School, and studied medicine at St. Thomas's Hospital, London, where he qualified as L.R.C.P. and M.R.C.S. He went to Boston in 1890 and practised there until he retired in 1926. He was a member of the Boston Town Council for many years and was elected an Alderman in 1932. He was also a member of the Holland County Council for some ten years. Dr. South was a borough magistrate from 1939 to 1944. He was also a governor of Boston Grammar School and of the Girls' High School and a manager of the Park School and a trustee of the Boston Savings Bank.

Dr. JAMES CROCKET died in Glasgow on Nov. 6, aged 66, after a long illness. He was a native of Leith and from his early years was anxious to become a missionary, but he was in business for some time before studying medicine at Edinburgh University. He graduated there as M.B., Ch.B. in 1909, and M.D. in 1913. The D.P.H. followed in 1915, and F.R.C.P.Ed. in 1923. Shortly after qualifying Dr. Crocket went to China as a medical missionary under the Church of Scotland, but before very long he was invalided home. Later on he offered himself to the London Missionary Society, but was rejected on health grounds. In 1913, after some experience of general practice at Falkirk, he was appointed medical superintendent of the orphan homes, the sanatorium, and the colony for epileptics at Bridge-of-Weir. On retiring from this office after 15 years' service, he was appointed visiting physician to the sanatorium. When the first lectureship on tuberculosis was instituted at Glasgow University, Dr. Crocket was appointed to it, and with the abundant material he had at Bridge-of-Weir, and by his efficiency as a teacher, he proved himself a source of inspiration both to the university students and to his fellow-workers at the sanatorium. After ceasing to be a whole-time official he developed a very large practice among the subjects of pulmonary tuberculosis. He was a man of intense energy and devoted to the interests of his patients. At the Annual Meeting of the B.M.A. at Glasgow in 1922 he was vice-president of the Section of Tuberculosis. Besides contributing to periodical literature Dr. Crocket published works on the *Physical Examination of the Chest* and *Physical and Radiological Examination of the Lungs.*

Dr. JAMES SCOTT, who died suddenly in Edinburgh on Nov. 13 at the age of 77, had held many medical appointments in that city and did valuable work as lieut-col., R.A.M.C.(T.), during the years 1914–21; he was officer in command of British and Indian hospitals in Egypt after serving at Gallipoli, and in Cyprus, Turkey, Syria, Palestine, and East Africa. A native of Dundee, he studied at University College, Dundee, and Edinburgh University, and took the degrees of M.B., C.M.Ed. in 1894, the M.D. with commendation in 1898, and the B.Sc. in Public Health in 1903; he also held the D.P.H., and the certificate in diseases of tropical climates. After qualifying Dr. Scott worked in a number of resident posts at the Edinburgh Royal Infirmary and at the Victoria Dispensary for Diseases of the Chest. He began his service with the Army in 1901 as surgeon to the Military Hospital at Edinburgh Castle. About that time he published papers in the *Journal of Physiology*, in the *Proceedings of the Royal Society*, and in these columns, and afterwards during his service in Egypt wrote on diseases caused by flies. He had taken a prominent part in outdoor sports and was a strong swimmer, receiving the medal and award of merit of the Royal Life-Saving Society.

Dr. ERNEST VICTOR SUCKLING died suddenly at Gidea Park on Nov. 16, aged 51. Born at Chelmsford, he was educated at King Edward VI Grammar School in that town, and for four years was a student-assistant in the laboratory of Dr. J. C. Thresh, while continuing his studies at the Sir John Cass Technical Institute. Throughout the war of 1914–18 he was attached to mobile laboratories in France; he was mentioned in dispatches and promoted lieutenant, R.A.M.C., in the field, receiving his commission while as yet unqualified in medicine. He was finally in charge of No. 4 Analytical Laboratory, British Army of Occupation in Germany. On demobilization he continued his studies at the London Hospital Medical School and University College, qualifying M.R.C.S., L.R.C.P. in 1924 and graduating M.B., B.S.Lond.; he took the D.P.H. in 1927. As a partner in the firm of Thresh, Beale, and Suckling, of which he became sole director in 1938, he controlled a widespread practice as a consulting bacteriologist and water examiner to numerous authorities. He was consultant water bacteriologist and analyst to the household of H.M. the King and had acted as consultant to Government Departments. He was a joint author of the fourth edition of *The Examination of Waters and Water Supplies* (Thresh, Beale, and Suckling) and prepared the fifth edition. Dr. Suckling held the appointment of bacteriologist to the Essex County Council in 1938–42; he was a professional associate of the Institution of Water Engineers, Fellow of the Society of Medical Officers of Health, and member of the Society of Public Analysts. He was elected a Fellow of the Royal Institute of Chemistry, and examined for it in water supply and the treatment of sewage and trade effluents. He was the principal figure concerned with the investigation and control of the Sutton waterborne epidemic and the Croydon typhoid epidemic; in recognition of this work the Royal Sanitary Institute elected him a Fellow.

Dr. GEORGE CRUICKSHANK BURGESS, who died at his home in Forfar on Nov. 18, joined the B.M.A. 43 years ago and was president of the Dundee Branch in 1927–8. Born in Aberdeen on March 15, 1879, he studied medicine at the University of Edinburgh, graduating M.B., Ch.B. with honours in 1901, and M.D. with commendation in 1913. He held resident surgical posts at the Perth Royal Infirmary and the Liverpool Infirmary for Children, and after settling in practice at Forfar became medical officer to the local infirmary in 1907, and district medical officer; he had also been visiting medical officer at Cortachy Castle Auxiliary Hospital, Angus. Dr. Burgess was for some years chairman of the Local Medical and Panel Committee for the county of Forfar, after serving as its secretary, and held office in the Forfarshire Medical Association as vice-president.

HERBERT T. NIXON, M.B.E., M.D., F.R.C.S.Ed., died on Nov. 24 at his residence in Anfield at the age of 74. His passing marks the end of a family doctor, respected by his colleagues and beloved by his patients. Dr. Nixon, in spite of an academic career of high order, chose to serve as a general practitioner. An early riser, fond of cycling, he took late to motoring, to ease his busy day. His diagnostic acumen was stimulating to all, especially the young house-surgeons, who appreciated the case history which accompanied his patients to hospital; the acknowledgment of any letter written, and even a note at a later date on progress or point of interest—"follow-up" ideal from the hospital point of view, and far more personal than is usual. To the end he followed closely modern lines of treatment, and with an engaging smile assessed their value in the light of his extensive clinical experience. For his work in the hospitals in the last war he was awarded the M.B.E. Ripe for retirement, he considered such would be desertion in these troubled times; and in a well "blitzed" area he quietly continued his vocation to the comfort and admiration of his patients great and small who, at his funeral service, paid a touching tribute to this fine exponent of our art.

We regret to announce the death of Mr. G. A. REID on Dec. 1 at the age of 71. For some time he had been in very poor health, and the death of his wife two years ago was a blow from which he never recovered. In spite of the

troubles he worked until the eve of his death. George Alexander Reid received his medical education at Aberdeen, qualifying M.B., C.M. in 1895, proceeding to the M.D. in 1899; a year later he took the F.R.C.S. of Edinburgh. He had practised in Bournemouth for 45 years, and for 20 years was on the honorary surgical staff of the Royal Victoria and West Hants Hospital. On reaching the retiring age in 1933 he was appointed consulting surgeon. He was at one time president of the Bournemouth Medical Society. Reid was brought up on a farm in the Highlands. He was a real clinician with the breadth of vision, reserve, modesty, and kindness of one who has worked in harmony with Nature. His influence was felt by all who had the privilege of working under him.

We regret to anounce the sudden death at Hove on Dec. 4 of Dr. ERIC LEIGH FYFFE, recently chairman of the Brighton Division of the British Medical Association. He took the English Conjoint diplomas in 1908 and the M.B., B.S.Lond. in 1909, after studying at St. Thomas's Hospital, where he became house-physician, resident anaesthetist, and senior obstetrical house-physician. He had been surgical specialist to the British Forces 1914–18, was created an Officer of the Order of the Crown of Belgium at the end of 1918, and joined the Reserve of Officers with the rank of major, R.A.M.C. Dr. Fyffe was medical officer to the Crescent Convalescent Home, Brighton, and visiting medical officer to St. Dunstan's Annexe for Blinded Soldiers and Sailors. He was a member of the Brighton and Sussex Medico-Chirurgical Society, and before his election as chairman served on the executive committee of the local Division of the B.M.A.

Dr. SIDNEY PHILIP MATTHEWS, who had practised for many years at Crawley and Three Bridges, Sussex, died on Dec. 5. He joined the Westminster Hospital Medical School with a classical entrance scholarship and went on to St. Mary's with an entrance scholarship in science, qualifying M.R.C.S., L.R.C.P. in 1890. Before taking up general practice he was resident medical officer for 2½ years at the Hospital for Women and Children, Brighton, and then resident medical officer at the West Brighton Hospital. He became surgeon to the West Sussex Constabulary and to the Gatwick race meetings, and was surgeon to the Crawley and Ifield Cottage Hospital. Dr. Matthews joined the B.M.A. in 1912 and contributed a number of case notes to these columns; he also wrote occasional letters published in our correspondence columns. He was a J.P. for Sussex, a county councillor, and a much-respected figure far beyond his own neighbourhood.

Dr. J. D. SPEID SINCLAIR, who died on Dec. 6, qualified M.B., Ch.B. at Glasgow University in 1910. He held resident posts of increasing seniority at various hospitals, and served in the R.A.M.C. in the last war. After demobilization he was for a time on the staff of the Ministry of Pensions before deciding to specialize in anaesthetics. At one time he was attached as honorary anaesthetist to Charing Cross, the Homoeopathic, and St. Peter's Hospitals. He was also anaesthetist to the Hendon Memorial Hospital, where he served in the E.M.S. Though well versed in modern methods of anaesthesia he always retained a great liking for chloroform, which he administered with a skill and safety typical of his Scottish origin. His attractive personality will be sadly missed by his many friends.

Dr. JOHN GRUFFYDD of Bethesda, Caernarvonshire, who died recently at the age of 74, was a native of that town and had practised in the district for 44 years. He was trained at St. Bartholomew's Hospital and qualified M.R.C.S., L.R.C.P. in 1893. He held many local appointments, was a life member of the British Red Cross Society, lecturer for the St. John Ambulance Brigade for many years, member of the Insurance Committee of Caernarvonshire, and medical examiner for the county education authority. After retiring from general practice Dr. Gruffydd took charge of the Penrhyn Quarry Hospital for the last seven years of his life. Prominent in social and religious circles, he was much loved by his patients and friends in the district. He had been a member of the B.M.A. for more than 50 years.

The late Dr. WILLIAM ALFRED CLAYTON COX of Hartley Wintney, Hants, was a student at St. Mary's Hospital and qualified in 1900. Before settling in general practice he was house-surgeon at the Horton Infirmary, Banbury. He held a number of local appointments—public vaccinator to Nos. 1 and 4 Districts, medical officer to the local infirmary, medical officer to the Post Office and Police, and surgeon to the Fleet Cottage Hospital. He joined the B.M.A. in 1901 and was chairman of the Aldershot and Basingstoke Division from 1937 to 1943. Dr. Cox will long be remembered in the neighbourhood as a man who lived for his work and loved the people, however varied their lives, among whom he worked so long. He won the affection and the love of all, and remained at duty to the end.

News comes from Colombo of the death of Dr. C. I. DE SILVA on Sept. 21, 1944, nine days before he was due to retire from Government service. After a brilliant school career at the Royal College, Colombo, he entered the Medical College. There he won the Jeejeebhoy scholarship, the Abrew gold medal in zoology, and the Government first professional scholarship. Before completing his medical course in Ceylon he came to London and entered University College Hospital. While in England he won prizes for comparative anatomy, pharmacology, forensic medicine, hygiene, and psychiatry; he also won the Tuke medal in pathology and Bucknill scholarship, and was *proxime accessit* for the Filliter exhibition. After graduating M.B., B.S. he took a special course in tuberculosis, and returned home to become medical officer in charge of institutions for tuberculosis in Ceylon and lecturer in pathology at the Medical College, Colombo.

Universities and Colleges

UNIVERSITY OF GLASGOW

It is announced that Dr. Daniel Fowler Cappell, dean of the Faculty of Medicine and professor of pathology in the University of St. Andrews, and pathologist to the Royal Infirmary, Dundee, has been appointed to the chair of pathology in the University of Glasgow in succession to the late Prof. J. Shaw Dunn.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—W. I. D. Scott.

M.B., CH.B.—*Class II:* [1] [2]Edith M. Brown, [1] [2]D. A. Gregson. *Part III:* M. K. Alexander, J. T. D. Allen, E. T. Anderton, H. B. Andrews, E. H. Arnels, J. P. D. Bates, T. J. Boag, E. Cooper, D. Craddock, H. T. Davenport, [3]K. R. Dumbell, E. D. Edmondson, J. L. Edmondson, I. J. C. Frew, A. Griffith, J. E. Hall, D. A. Harbord, C. R. Helsby, G. Hughes, L. Jacobs, E. S. Jones, H. A. Jones, R. S. Jones, W. T. W. Lawson, S. Lipton, J. B. Lynch, K. McCarthy, M. G. McEntegart, R. H. Martlew, Lucille F. Morgan, D. B. Mossman, C. M. Ogilvie, C. A. Pearson, H. H. Pilling, W. L. Sanders, Isabel S. Smellie, G. W. Storey, P. J. Taylor, W. A. Thompson, R. D. B. Williams. *Passed in Separate Subjects:* Beryl G. Anscombe, G. Ansell, B. Dover, Monica Drinkel, L. Griffiths, B. B. Harrison, R. V. Kinnish, J. R. E. Wilson (Medicine, Obstetrics, and Gynaecology). J. W. L. Edwards, B. R. Frisby, J. R. Lewis, Corris Venables (Medicine and Surgery). *Part II:* Audrey M. Ashcroft, N. L. Bailey, K. Baker, S. Beacon, [4]D. T. Binns, [4]R. Brearley, P. M. Bretland, Cécile N. Broster, G. B. Brown, J. H. E. Carmichael, Helen A. Cawson, N. Coulshed, Paulin M. Dean, Joan Evans, R. L. Goldson, H. C. Graham, E. A. Harris, Ailsa M. Heath, Vivien P. Helme, Maureen M. Hoey, D. T. L. Hughes, Nellie Hughes, [4]J. C. Humber, [4]G. C. Hunter, F. G. Ince, Barbara M. Killick, Jean Learoyd, A. C. Levinson, H. S. Levy, T. R. Littler, J. A. O'Garra, A. E. Pritchard, G. P. Reed, H. Roberts, W. G. Roberts, P. W. Robertson, L. Robinson, Olive R. Rodgers, L. Rosenbloom, K. S. Shaw, F. W. Sheffield, H. H. Slack, Helen M. Taylor, L. Tempkin, Dorothy E. M. Thomas, R. G. Thomas, Maureen M. Tickle, [4]L. F. Tinckler, D. R. Wallace-Jones, J. Ward, Joyce Watson, N. P. Watson, W. F. Wille, E. H. Wilson, [4]Esme M. Wren, Aline N. Wynroe (Public Health).

[1]With honours. [2]Distinction in obstetrics and gynaecology. [3]Distinction in surgery. [4]Distinction in public health.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners:

M.B., B.CH.—*Obstetrics and Gynaecology:* W. H. Beasley, J. W. Bowen, B. L. Crystal, G. R. Davies, G. K. Davies, L. G. G. Davies, L. A. J. Evans, Myrddin Evans, Peter Griffiths, B. E. Heard, I. D. Jacobs, P. G. Jagger, D. G. Jones, W. T. Lloyd, Joy A. MacGregor, Jack Matthews, B. H. McCracken, Enid A. Reed, R. M. E. Seal, Gwladys M. Sewart, M. J. Tanner, D. R. Thomas, L. L. R. White, Catrin M. Williams, D. M. Williams, P. R. J. Williams, Roberta Williams.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. Innes Wares Brebner has been admitted to the Honorary Fellowship of the Royal College of Surgeons of England. On account of the difficulty in travelling to England Prof. Brebner was admitted in South Africa by Major-Gen. P. H. Mitchiner, a member of the Council of the College. The ceremony took place in the Great Hall of the Witwatersrand University at the conclusion of the Beyers Memorial Lecture, which was delivered by Major-Gen. Mitchiner. Prof. Brebner expressed his appreciation of the honour conferred on him by the Royal College of Surgeons. The Chancellor of the University, Mr. J. H. Hofmeyr (Vice-Premier of the Union of South Africa), publicly expressed his regret at the damage suffered by the Royal College of Surgeons, and his appre-

ciation of the honour done to the Union of South Africa by the award of the Honorary Fellowship to Prof. Brebner. He said that the Witwatersrand University was doing all it could, from the pathological material at its disposal, to help in the replacement of the specimens lost in the destruction of the College Museum.

At a meeting of the Council held on Dec. 14, with Sir Alfred Webb-Johnson, President, in the chair, Surg. Cmdr. (D) F. E. D. Hallon was elected a member of the Board of Examiners in Dental Surgery for three years. The following examiners were appointed for the newly instituted Diploma in Medical Radiodiagnosis and Diploma in Medical Radiotherapy for the remainder of the collegiate year 1944–5: *D.M.R.D.*—F. L. Hopwood and J. L. A. Grout. *D.M.R.T.*—F. L. Hopwood and G. W. Stebbing. Mr. Seymour Barling was re-elected representative of the College on the Court of Governors of Birmingham University for a further three years. Mr. C. Max Page was appointed Bradshaw Lecturer for 1945. Air Vice-Marshal Geoffrey Keynes and Mr. R. Watson-Jones were elected Hunterian Professors for 1945.

Diplomas of Fellowship were granted to the following candidates:

L. W. Hefferman, I. Spiro, W. T. Ross, J. D. Raftery, H. A. McDonald, S. K. Nag, F. R. Hurford, P. R. Stringer, H. Petty, R. L. Canney, G. N. Taylor, H. G. S. Korvin, D. I. Williams, R. B. W. A. Cole, P. B. Ryan, A. Naylor, R. D. Richards.

A Diploma of Membership was granted to James Sharp.

Diplomas were granted, jointly with the Royal College of Physicians of London, as follows:

DIPLOMA IN ANAESTHETICS.—J. D. Blair, Victoria M. Brown, J. S. Calnan, M. V. H. Denton, Cecile P. Fellows, E. K. Gardner, Marion W. S. Green, J. L. Griffin, R. Peters, Edith Rhodes, M. Rushton, T. A. Turnbull, D. Wilson, Edith Winternitz, Violet B. Young, A. H. Zair.

DIPLOMA IN CHILD HEALTH.—A. D. Barlow, T. E. D. Beavan, Joyce L. Chamberlain, Helen Davidson, Mary D. Dixon, Margaret Edge, Agnes J. M. Gilruth, Muriel C. Goodchild, Jean L. Hallum, Elizabeth Hoffa, R. F. Hollick, G. A. James, P. A. Jennings, L. S. Leveson, R. I. Mackay, H. E. Pollak, Millicent M. Rogerson, L. Sagorin, Sheila F. Schofield, D. J. Thomas, C. D. Thornley, P. G. Todd, H. G. Triay, Peggy O. M. Tyson, D. Weiner.

The Faculty of Homoeopathy announces that at the first examination for its diploma (M.F.Hom.), held at the London Homoeopathic Hospital, Oct. 2–4, the following satisfied the examiners: Jeanie McC. H. Hindmarch, M.B., Ch.B., F. R. Neubert, M.B., Ch.B., W. Harold Emslie, M.B., Ch.B.

The Services

Majors W. N. Crowe, M.M., 9th Btn. West Riding Home Guard, and W. C. Lowry, 14th Btn. Northumberland Home Guard, have been appointed M.B.E. (Military Division) in recognition of meritorious service in the Home Guard.

CASUALTIES IN THE MEDICAL SERVICES

Died.—War Subs. Capt. James Philip, R.A.M.C.

Wounded.—War Subs. Capts. A. W. Little, R. T. Michael, and D. R. Urquhart, R.A.M.C.

Reported prisoner of war.—Capt. C. C. Michael James, R.A.M.C.

Previously reported wounded and missing, now reported prisoner of war.—Capt. V. D. R. Martin, R.A.M.C.

Previously reported missing, now known to be a prisoner of war.—Capt. B. C. Jeffrey, R.A.M.C.

DEATHS IN THE SERVICES

Surg.-General HENRY WICKHAM STEVENSON, C.S.I., I.M.S., died on Dec. 5 at Balladoole, near Castletown, in his 87th year. He was born in Canada, and qualified in 1880 with the M.R.C.S. and L.S.A. and entered the Indian Medical Service in the following year, when he was posted to the Bombay Presidency. After completing his service on the military side he entered the Bombay civilian medical department, where he remained for the rest of his service. After holding district civil surgeonships he occupied important hospital posts in Bombay, and took an active part in the Bombay Medical Congress in 1909. In 1900 he was awarded a Kaisar-i-Hind medal, and in 1909 was promoted to the administrative grade as surgeon-general with the Government of Bombay and became an additional member of the Council of Bombay. In 1910 he was awarded a Good Service Pension for long and efficient service, and the C.S.I. in 1912. He was an all-round man and a popular officer. After his retirement in 1914 he resided in the Isle of Man.

Flight Lieut. ARCHIBALD NORMAN CAMPBELL, who was killed in a flying accident on Dec. 10, was born in January, 1918, studied medicine at Queen's University, Belfast, and qualified M.B., B.Ch. in 1942. After holding a house appointment at Belfast City Hospital for a year he was commissioned as flying officer in the Medical Branch, R.A.F. Volunteer Reserve.

Medico-Legal

UNSUCCESSFUL TREATMENT OF A WORKMAN

The present system of workmen's compensation—may its end be near!—has only been kept going by the determination of the courts that the workman shall so far as possible have the benefit of ambiguity in legal interpretation. It is all the more surprising that the Court of Appeal should have reaffirmed the other day the principle that a workman may lose his right to compensation through the failure of medical treatment to cure him.

The rule, as laid down in Humber Towing Co. *v.* Barclay (1911), is that if the workman's condition at the time of arbitration is due substantially to improper treatment and not to the accident, he is not entitled to compensation. The foundation for the rule is the general principle of common law that if the chain of causation between an act and an effect is broken by a new intervening act (*novus actus interveniens*), so that the old cause goes and a new one is substituted for it, that new act gives a fresh origin to the after-consequences. Now this general rule works on the whole justly in cases where one citizen is claiming damages from another for loss due to a negligent or unlawful act. To apply it to a workman's compensation case seems to contravene the whole spirit of workmen's compensation law.

Last summer the Court of Appeal was considering the case[1] of a workman who had fallen on his shoulder and fractured his humerus at the upper end. The fracture was missed in hospital and only discovered by a specialist some time afterwards, too late for function to be restored to the arm. The judge, sitting as arbitrator, said he was driven to the conclusion that the stiff arm was the direct result of the ineffective and negligent treatment given to the workman at the hospital; he was suffering from the results of that treatment and not of the injury. The majority of the court, Lord Justice Luxmoore and Lord Justice Du Parcq, treated this as a finding of fact with which the court could not interfere, restated the rule that a *novus actus interveniens* breaks the chain of causation, and decided against the workman's claim. Lord Justice Scott, however, in a long and vigorous dissenting judgment, stated what most non-legal persons will probably feel: that Parliament never meant the courts or anyone else to investigate the enormous variety of factors which operate to modify the workman's condition between the injury and the arbitration. To make the workman's right to compensation depend on the quality of the medical treatment he gets is lamentable. And, he added, why should the "chain of causation" be broken only by negligent treatment? Why not also by honest mistaken treatment, or by an innovation of treatment undertaken in a desperate case, or by the wartime shortage of a necessary drug, or, for that matter, by the explosion of an enemy bomb? The guiding principle ought to be, surely, that but for the injury the workman would not have been in hospital at all; the injury alone subjected him to the risk of undergoing ineffective or harmful treatment.

The case may still go to the House of Lords, and then we may have a judgment which will shake into some sort of coherence the two conflicting lines of decisions which Scott, L.J., exposed so lucidly. But whatever their lordships may think, the mere existence of such a legal controversy shows how unsatisfactory is the present provision for workmen's compensation. The Government proposes a complete change to a system of insurance, and if this really takes the injured workman out of the courts it will be a godsend. It will be all the more welcome if it ensures that doctors shall not be convicted of professional negligence in judicial proceedings to which they are not parties and in which they are not entitled to defend themselves.

TWO DOCTORS EXONERATED

A good deal of publicity was given to an inquest held by the Westminster coroner earlier in the year in which he declared that two medical certificates were erroneous. An actor named Henry Edward Flynn, of Hugh Street, Westminster, had died in his bedroom at Sheffield, and two Sheffield doctors had certified that death was due to coronary embolism and rheumatic endocarditis. The coroner ordered a post-mortem examination, and the pathologist reported a linear fracture at the base of the skull and bruising around one ear which could have happened about twenty-four hours before death. At the adjourned hearing[2] the coroner, recording a verdict of accidental death, said he thought that some hours before Flynn died he had injured himself by falling out of bed, or on to the floor of his room. He had no doubt that both doctors had certified to the best of their medical skill and knowledge, and no question as to their professional good faith arose. On the other hand, the accuracy of certificates of death was of interest to society and an alarming number turned out to be ill founded.

[1] Rothwell *v.* Caverswall Stone Co. Ltd. (1944) 2 All E.R. 350.
[2] *Times*, Aug. 23, 1944.

Medical News

Prof. S. J. Cowell, F.R.C.P., will give a course of ten lectures on "Nutrition and its Applications to Large-scale Catering" on Fridays at 3 p.m. at the Royal Society of Arts Library, John Street, Adolphi, W.C., beginning on Jan. 19. The fee for the course is two guineas, and requests for tickets should be sent to the secretary, National Society of Caterers to Industry, 83, Pall Mall, S.W.1.

The Association of Austrian Doctors in Great Britain announces a lecture on hypochromic anaemias by Dr. H. S. Baar at 69, Eton Avenue, N.W.3 (near Swiss Cottage Station) on Sunday, Jan. 7, at 11.30 a.m. Guests will be welcome.

The report of Lord Mayor Treloar Cripples' Hospital and College for the year ending March 31, 1944, is for reasons of economy a short document, but the chairman of the trustees, Lord Burnham, is able to say that in spite of wartime difficulties the children are being cared for as well as ever. During the year 372 beds were, on the average, occupied in the hospital at Alton. While at the moment it is impossible to forecast the future plans of the Government for a National Hospital Service, the trustees are confident that no scheme will be considered satisfactory which does not meet adequately the demands of the health of children, and they foresee an increasing call upon the services provided by Treloars. The clinics in Hampshire and the Isle of Wight were maintained throughout the year, furnishing a consultant service for crippled children near their own homes.

The Sir James Mackenzie Institute for Clinical Research at St. Andrews has now been running for a quarter of a century. The report for 1944 states that the work has continued on the restricted lines of the last few years, but the whole of the building is once more in the Council's hands after relinquishment by the military authorities. Brig.-Gen. Crosbie's place on the Council has been taken by Lord Amulree, M.D., nephew of the founder, Sir James Mackenzie. The death of Dr. James Orr, honorary director, is recorded with sorrow; from the beginning of the Institute Dr. Orr took a leading part. He had been closely associated with the founder in his research work on the heart, and his deep concern for the welfare of the Institute never waned. There also passed away during the year Dr. Charles Douglas, who had been associated with the work from its early days and afterwards gave ungrudgingly of his knowledge and advice as honorary librarian. Revenue exceeded expenditure, but if the Institute is to resume its full activities after the war a greatly increased income is essential, and the Council therefore appeals for funds to make this possible.

EPIDEMIOLOGICAL NOTES

Quarterly Return for Scotland

During the third quarter of this year the birth rate was 18.5 per 1,000, equal to the rate of the third quarter of 1943, which was the highest rate for this quarter since 1931. Infant mortality was 65 per 1,000 registered live births. This rate was 10 above that for the corresponding quarter of 1943, and 7 above the average of the five September quarters, 1939–43, and was the highest rate recorded in any third quarter since 1928: much of the increase was due to an epidemic of enteritis in Glasgow. Stillbirths were 31 per 1,000 total births, this being the lowest rate for any quarter since registration of stillbirths began in 1939. Maternal mortality was equivalent to a rate of 2.8 per 1,000 live births, and was the lowest rate ever recorded for any quarter. The rate was 1.3 below the five-year average of the preceding third quarters.

The general death rate during the quarter was 11.7 per 1,000, this being 0.5 above the five-years average and the highest rate recorded in a September quarter since 1918. Compared with the age distribution of the five-years average, the deaths under 1 year rose by 17%, and those at ages of over 55 by 7%. For ages 1–15 years deaths fell by 19%. Deaths from the principal epidemic diseases numbered 113—86 fewer than in the third quarter of 1943; of these, 44 were ascribed to whooping-cough and 28 to diphtheria. The death rate from all forms of tuberculosis was 75 per 100,000, and that from respiratory tuberculosis was 57. The rates from all forms and from respiratory tuberculosis were each 7 above the five-years average. A striking feature of the deaths was the increase in diarrhoea: of the 497 deaths from this, 428 were in infants under 1 year and 333 occurred in Glasgow; there was no evidence of serious increase elsewhere in the country.

The number of marriages, 9,865, were 363 fewer than in the third quarter of 1943, and were equivalent to a rate of 7.8 per 1,000. This rate was 1.3 below the pre-war average 1934–8), and was the lowest rate recorded in any September quarter since 1932.

No. 49

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	(b)	(c)	(d)	(e)	1943 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	44	4	24	—	2	77	10	28	2	2
Deaths		—	1				1	—		
Diphtheria	613	21	148	128	21	634	29	178	126	45
Deaths	10	—	1	—	—	11	2	4	1	—
Dysentery	254	24	78	5	—	166	25	55	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	—	—	—	1	—	—	—	—
Deaths		—					1			
Erysipelas			43	12	3			46	9	2
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				27					18	
Deaths	35	4	5	9	2	44	7	9	10	5
Measles*	8,906	12	413	13	264	444	50	53	44	1
Deaths	13	—	—	—	—	1	—	1	1	—
Ophthalmia neonatorum	61	3	18	1	—	66	1	2	13	1
Deaths										
Paratyphoid fever	—	—	1 (B)	—	—	2	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	715	29	7	2	8	2,956	251	29	7	7
Deaths (from influenza)	20	1	1	—	—	1,148	128	58	3	5
Pneumonia, primary			356	23				31	19	
Deaths		2		12	7		176		30	18
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	5	2	1	1	—	11	—	—	1	—
Deaths		—					—			
Puerperal fever		4	9		—		4	10		—
Deaths										
Puerperal pyrexia‡	138	13	10	1	—	162	7	10	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,005	58	287	31	65	2,564	178	316	25	86
Deaths	2	—	—	—	—	—	—	1	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	2	1	2	5	—	5	4	3	6	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,465	39	144	55	10	1,641	149	233	23	24
Deaths	14	—	1	—	—	11	2	4	1	3
Deaths (0–1 year)	349	40	72	23	19	387	47	77	44	36
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,521	663	595	217	120	8,832	1,437	874	253	159
Annual death rate (per 1,000 persons living)			13·7	14·1	§			19·7	16·6	§
Live births	6,762	617	932	332	276	5,896	723	807	324	235
Annual rate per 1,000 persons living			19·0	21·5	§			16·5	21·3	§
Stillbirths	197	19	29			199	23	34		
Rate per 1,000 total births (including stillborn)			30					40		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Insect Sprays in Sleeping Quarters

Q.—*A great amount of "flit" is being used in certain billets. If the atmosphere of the room is well saturated regularly every night with a standard solution of "flit," is there any possibility of toxic action on human beings during the hours of sleep, and, if so, what symptoms are likely to arise? Presumably the main constituents of "flit" are pyrethrum and a petroleum solvent.*

A.—Fly or mosquito sprays containing approximately 0.1% pyrethrins in refined kerosene (which was a standard pre-war formula) would be most unlikely to cause any systemic toxic symptoms in man. Frequent contact with pyrethrum over a long period may, however, result in pyrethrum allergy in a small proportion of susceptible individuals. With "flit," as with other commercial preparations, there is no guarantee that the composition of the product will not be changed occasionally as a result of shortages and in view of new synthetic discoveries. All reputable insecticides of this type are, however, carefully examined for health hazard before being put on the market.

Thyroid Dosage and Tolerance

Q.—*Can a patient take thyroid extract indefinitely without harm? I have a patient who cannot keep her weight at a reasonable level on diet alone. If she leaves off the thyroid her weight goes up. Her age is 43.*

A.—The answer to the question depends upon the dose of thyroid and the patient's tolerance. In the absence of any untoward symptoms, the answer is probably in the affirmative. Most patients, however, with large doses of thyroid show certain unpleasant symptoms, such as increased pulse rate, tachycardia, tremor, nervousness, and perspiration. Exophthalmos has very occasionally been recorded, but this is unusual. Thyroid also increases the breakdown of tissue protein, and this must be remembered when the dose of thyroid is increased beyond the point of tolerance in an illogical attempt to reduce weight excessively in an obese person. Thyroid has no specific effect on obesity, although it may prove helpful in some cases. Estimations of the basal metabolism, and of the blood cholesterol, are more scientific indications of the dosage or overdosage of thyroid extract.

Spontaneous Fractures

Q.—*I was pregnant in March, 1941, and again in Feb., 1943. In Dec., 1943, I had pain and tenderness along the costal margins of the right lower ribs, culminating, during a bout of coughing, in cracking in the middle of the 11th rib. X-ray examination that day showed no fracture. A week later there was an easily palpable lump of what was presumably callus. Feb., 1944.—Similar pain beginning in 6th right rib. Subsided with early strapping of chest. April–May.—(i) Tenderness in semilunar of left wrist with pain on flexion and extension. (ii) Tenderness and swelling of head of middle metacarpal of right hand, and swelling over dorsum of hand. (iii) Pain and tenderness beginning at costal margin and then localized at a point along the 9th right rib, relieved by strapping. Callus appeared later. X rays again revealed nothing abnormal, although the ribs showed thickening and calcification at the site of the December incident.*

A.—The differential diagnosis here would have to range over the various causes of pathological fracture, of which osteomalacia and fibrocystic disease of bone would be the most likely at this time of life. The condition is serious enough to justify careful investigation, which would include *x*-ray examination of representative bones, such as the skull and the pelvis, by a radiologist skilled in this work, and an analysis of the serum proteins, calcium, phosphate, and phosphatase. These are definitely not the kind of investigations which can be carried out by post, and they will entail the inquirer's attendance at a university centre or key hospital. She should therefore get in touch with a medical consultant with a special interest in metabolic diseases.

Intercourse After Delivery

Q.—*How soon after a normal delivery may sexual intercourse be allowed with safety?*

A.—The possible dangers are introduction of infection and injury to the soft and vascular vaginal walls. After the fourteenth day, when the cervix is usually closed, there is little risk of infection, but involution is not complete until the sixth week. With these facts in mind, the features of any particular case—the time for which the lochia persists and the presence of vaginal and perineal tears—must also be taken into account. Opinions vary, and some authorities even go so far as to advise coitus from the fourteenth day onwards with the idea of assisting involution and restoring the tone of the pelvic musculature. A moderate view would be that gentle coitus can be permitted with reasonable safety four weeks after delivery, providing that the lochial discharge is not heavy and vaginal tenderness is minimal.

International Units of Oestrogen

Q.—*The combined textbook by Munro Kerr et. al. states that the I.U. of pure crystalline oestrone is 0.0001 mg. (1/10,000 mg.). The "Synopsis of Obstetrics and Gynaecology" by Aleck Bourne states that it is 0.00001 mg. (1/100,000 mg.). Which is correct? Is the international benzoate unit 0.0001 mg. (1/10,000 mg.) of pure crystalline oestradiol benzoate?*

A.—The international unit of oestrone is 0.0001 mg., or 1/10,000 of a milligramme. The international benzoate unit represents 0.0001 mg. (1/10,000 mg.) of crystalline oestradiol benzoate. These units were accepted by the Commission on Biological Standardization of the League of Nations Health Organization. The standards are preserved at the National Institute for Medical Research, Hampstead, London, and from there samples of these standards are distributed to the various national distributing centres. Standardization of these hormones is biological, and is done by animal experimentation.

Frequency due to Enlarged Prostate

Q.—*In the JOURNAL for Nov. 4 (p. 614) you refer to the failure of hormone treatment for enlarged prostate. It would, I think, be helpful if you could indicate the various non-operative means by which the frequency of micturition due to benign enlargement can, to some extent at least, be ameliorated. Does the gland sometimes tend to return to a more normal size in later years?*

A.—Frequency of micturition associated with enlarged prostate may be due to the interference of the intravesical portion of the gland with the normal function of the internal vesical sphincter, thus allowing urine to leak into the posterior urethra and to initiate the reflex of micturition. After removal or resection of the gland the external sphincter learns to assume full control. Frequency may also be due to a large amount of residual urine, which reduces the functional capacity of the bladder as a reservoir. At this stage the kidneys are often damaged by back pressure and diuresis is an added cause of frequency. The use of a catheter periodically of course relieves the patient of such frequency. Distressing frequency of micturition is, however, one of the important indications for cystoscopy to determine the exact changes at the vesical neck and operative treatment to produce a cure. An enlarged prostate does not tend to diminish in size in later years but to continue to enlarge.

Oestrogens for Acne

Q.—*Stilboestrol has lately been used for the treatment of acne vulgaris. Can you tell me if the results have been satisfactory? If so, what dosage should be used, and how long should it be continued? I have in mind the case of a girl of 15 with acne vulgaris involving the face and suprascapular region.*

A.—Pustular acne in males has been treated by implanting oestradiol 200 to 250 mg. with the object of saturating the system with oestrogen. In females a similar procedure is probably contraindicated. Although encouraging results have been reported, it is the view of some authorities that until more is known of the collateral effects, which may be considerable, hormone therapy in acne should be considered as in the experimental stage.

Anaesthesia in Infancy

Q.—*What is the safest anaesthetic to give a baby four weeks old for an operation for phimosis?*

A.—The safest technique for the general practitioner is undoubtedly open ether. The operation should be timed to take place 3 to 4 hours after a feed, and a hypodermic injection of atropine sulphate gr. 1/200 should be given about 40 minutes beforehand. A little ethyl chloride sprayed on to the mask, to the point

of unconsciousness only, will shorten the induction period, and a trickle of oxygen led under the mask is always a wise precaution in young babies, who often tend to develop a partially obstructed airway.

INCOME TAX

Depreciation of Car

J. A. recently took over his father's practice and with it a 16-h.p. 1936 car which is considered to have been worth £200. (Apparently J. A. did not pay his father for the car.) The father had been allowed depreciation on the car, with the result that of the original cost of £320 all but £13 had been allowed to him. Is J. A. entitled to any allowance?

*** The aggregate of the allowances to an individual must not exceed the cost to him less the amount received for its sale. If J. A. paid nothing for the car he is not entitled to any allowance—and in fact this is not altogether inequitable, as practically the whole original cost of the car has been charged against the father's taxable profits.

R. A. quotes the cost price of his car and the depreciation allowances given for subsequent years, and asks if he has had all he is entitled to.

*** With the exception of the first year (1940) the allowances have been calculated at 15% only, without the usual percentage addition. In fact 20% plus the addition is frequently allowed. "Wear and tear" is included in the "depreciation allowance."

Purchase of Practices

S. H. refers to a letter on page 81 of the *Supplement* of Oct. 14, and asks whether the statement "He will also get income-tax rebate at full scale on the interest . . ." is correct. He points out that the "earned income relief" is reduced by payment of interest.

*** The effect of paying, say, £100 out of profits of, say, £1,000, is that the £100 ceases to be regarded as income of the practitioner. (It is true that he has to account for tax thereon at the standard rate, but he recovers the amount when paying interest to the lender.) Consequently he bears tax on £900 only, and in that way may be said to get a full rebate for the £100 he pays. It is true that if that sum were not payable he would receive more earned income relief—i.e., on £100 instead of £90 only, but that is a natural consequence of the fact that his income from the practice *is* £900 only and not £1,000.

Sale of Car

J. B. bought a car in 1935 for £420; the depreciation allowances have reduced that amount to £39. If he now sells the car for, say, £400, will he be liable for tax on the transaction?

*** No, any "profit" arising out of the sale is a *capital* profit and not liable to income tax.

Cessation owing to Death

K.'s parent died in October, 1944, having paid the income tax due in January and July, 1944. What further tax may be due?

*** (*a*) For the year to April 5, 1944—if the actual profits for this year are greater than the amount assessed (on the basis of the previous years, of course), tax is payable on the amount of the difference. (*b*) For the period from April, 1944, to the date of death—no tax has been paid for this period; it will be due on the basis of the actual profits for that period, less any personal allowances which are deducted on the full year's basis.

Liability on Colonial Pension

D. M. asks what will be the amount of tax due from him on a Colonial pension of £600 a year.

*** On the basis of the rates, etc., for 1944–5, the calculation is as follows:

	£ s. d.	£ s. d.
Gross amount of income		600 0 0
Deduct—Earned income relief	60 0 0	
Personal allowance	140 0 0	
Child allowance	50 0 0	
Dependent relative, say	12 0 0	
		262 0 0
Taxable income		338 0 0
£ s. d.		
165 0 0 at 6s. 6d. in the £	53 12 6	
173 0 0 at 10s. in the £	86 10 0	
338 0 0	140 2 6	
Less life assurance, £92 at 3s. 6d. in the £	16 2 0	
		£124 0 6

(Of this amount, £35 would be recorded as "Post-war Credit.")

The rate of tax chargeable would be the same as that applicable to chargeable income derived from a contributory pension scheme.

Assistance of Wife in Practice

S. R.'s wife assists in dealing with patients who call at the house and with the telephone work, her assistance having become necessary owing to the loss of one of the two maids formerly kept. Can a claim be made for a salary paid to the wife for such work? And will any such claim affect the deduction hitherto allowed for the cost of similar assistance formerly given by one of the maids?

*** The answer to the first question is "Yes," and whether or not the wife should be regarded as an employee for national insurance purposes is not relevant to the income-tax question. S. R., however, can hardly claim a deduction for both the wife and the maid on the ground that both are now doing the work formerly done by the maid. If he pays his wife such an amount as will maintain the former deduction S. R. would seem to have all he is reasonably entitled to for this particular expense.

"Pay as you Earn"

G. M. is entitled to fees as a medical referee. Tax was deducted from the fees paid for the quarter to March but not from the fees for the following quarter. Why?

*** The local inspector of taxes can no doubt supply a definite answer. It may be due to the fact that when "pay as you earn" first came into operation the office responsible for paying his medical referee's fees had not been notified by the inspector of taxes that he would account for tax thereon in some other way—e.g., by paying under Schedule D. If that guess is correct, it may be assumed that when the tax on the Schedule D assessment comes to be paid, G. M. will be credited with the amount of tax paid by deduction from the fees for the March quarter.

Removal Expenses

S. L. is serving in the Forces and has been stationed in the same town since September, 1943. His lease of a house elsewhere has expired and he has stored his furniture; now he has been able to rent an unfurnished house near his station and has removed his family furniture again. Can any claim be made for the costs of removal?

*** We are not aware of any grounds on which such a claim can be supported.

Subscription to Medical Defence Society

T. B.'s partnership agreement compels him to join a medical defence society. Is the subscription allowable?

*** Yes—as the assessment is presumably under Schedule D the subscription is allowable irrespective of the condition in the partnership agreement.

Taking over a Practice

J. F. has taken over the panel practice of a practitioner who volunteered for service in the Forces, and has bought his car. He is at present using instruments left behind by his predecessor, but will ultimately have to buy his own.

*** No deduction can be claimed for sums laid out in acquiring a car or the apparatus necessary for the practice; such expenditure represents capital outlay and not "income" expense. A deduction, however, can be claimed for depreciation of the car at, say, 20% of the cost to J. F. The running cost of the car, including insurance, garaging, etc., is allowable. The inspector of taxes may allow a *part* of the cost of replacing a watch, but will probably regard the major part as a private expense.

British Resident Abroad: Purchase of Property in U.K.

A. H. is a British-born subject permanently resident abroad. He is considering the purchase of property here.

*** If he buys property here he will become liable to account for tax on the net rents received by him or his agent—i.e., on the gross rents less outgoings including repairs, insurance, and agent's commission for managing the property. Against the amount of the income will be allowed a proportion of the allowances he would receive if he were resident in this country. For example, if his foreign income (not liable to income tax here) is £1,400 and the income from the property is £100, he would receive the benefit of 1/15th of the "personal," "child," and other allowances according to his family circumstances, to be deducted from the £100 income liable to income tax.

Part-time Work: Travelling Expenses

H. N. is receiving £9 9s. per week for part-time work. Travelling costs him 2s. 6d. daily. Is he within "pay as you earn"?

*** Yes. He can claim a deduction in respect of his travelling expenses (up to a maximum of £10 for the year) if the necessity for travelling arises from a change in his place of work due to circumstances connected with the present war.

LETTERS, NOTES, ETC.

"Wooden Bullets"

Capt. HERBERT BOOTH, R.A.M.C., writes: With reference to your recent correspondence on the subject of wooden bullets it would appear that some correspondents have no practical experience with this ammunition. In order to clear up any doubt that may exist I have to-day, with the help of Major N. P. Thomas, R.A., an expert on ballistics, carried out the following experiment with the standard German wooden-bulleted blank cartridge. Rounds were fired at a sheet of cardboard 1/8 in. thick at various ranges with the following results (distance measured from muzzle of rifle); five rounds were fired at each distance: (*a*) 2 ft., considerable splinter effect and penetration of sheet of cardboard; (*b*) 7 ft., one elongated splinter lodged longitudinally in the cardboard without penetration; (*c*) 10 ft., no effect whatsoever. I think this proves that the German wooden-bulleted blank cartridge is intended only for use in auto-weapons during manœuvres, and that any reports on the lethal effect of this ammunition must indeed be taken "with a grain of salt."

Cleaning the Glans

Dr. J. F. KERR (Birmingham) writes: Regarding the reply in the *Journal* of Oct. 28 (p. 585), in my opinion the glans and coronal sulcus should be cleaned every time the child has a bath. If this is done from birth—and sometimes a little force is necessary—it will obviate many circumcisions that are (again, in my opinion) unnecessary. The amount of discharge into the coronal sulcus obviously varies, but if the cleansing is done by the mother with as little special attention as she gives to the ears there will be much less notice taken of the penis in adolescence than is caused by some of the twisted results of poorly done circumcision. I have frequently been called urgently to babies whose penis is twice the proper size for its age and with acute inflammation under the foreskin; but, on the other hand, I have one married patient aged 50 who has never had his foreskin back in his life and never had the slightest trouble.

Mr. A. ERNEST SAWDAY, F.R.C.S.Ed. (London), writes: I feel that your correspondent's advice on this subject is deplorable (Oct. 28, p. 585). There is no doubt that in this matter we can greatly improve upon the work of Nature. No child should be allowed to grow up with a glans which harbours "smegma and other sexual secretions." There is no more revolting asset in an adult male than a foreskin which is not permanently retracted. For some years I practised the stretching and retraction of the infant prepuce, but I gave it up long ago, as I have never yet found a mother or nurse who could be relied upon to continue the daily retraction until it would remain permanently back. I now circumcise all infants except (1) where the prepuce retracts so easily that it can be left back with no danger of a paraphimosis; (2) where there is any degree of hypospadias, or (3) where the parents do not consent. Very seldom have parents objected, and in these cases I have told them clearly that in my opinion they are denying their child one of the greatest benefits with which a baby boy can start out on the road of life. For some years past I have done the circumcision after the manner of the Jews. This I find is very quick and leaves nothing to be desired. In only one case have I had any haemorrhage to worry about, and that was before I appreciated the necessity for binding it up tightly with ribbon gauze. No sutures are used, and seldom any ligature. (The Jews, I believe, never use any.)

Aspirin Idiosyncrasy in an Asthmatic

Dr. W. DAVAN NEILL (Romford, Essex) writes: I think that possibly the following case may be of some interest. Patient, male, rather stout, somewhat plethoric, aged 62, asthmatic subject. I saw him in the early hours—about 1 a.m. Two hours previously he had taken 10 gr. of aspirin. Within an hour the following acute condition began to develop rapidly: marked swelling of face and neck, and of both lips, especially the lower, which was greatly swollen and distended; large fluid swellings under both eyes; some oedema of the glottis, with dyspnoea, dysphonia, and dysphagia. Pulse a little rapid and irregular. His facial appearance was admittedly alarming, but the condition steadily responded to treatment by adrenaline injection, 1 c.cm., and hot external applications to the neck. About twelve hours later little remained beyond slight fluid swellings under both eyes. Within recent years, he informed me, he had taken aspirin only once previously and then also had experienced the above symptoms, but to a less extent.

Growth on Ear

Dr. PROSSER THOMAS (London, W.1) writes: The diagnosis in this case (Nov. 25, p. 714) is almost certainly Chondrodermatitis nodularis chronica helicis; synonym: painful nodule of the ear. For details a textbook on dermatology should be consulted. As in the case mentioned, the lesion is resistant to radium and *x* rays. Thorough destruction by fulguration should cure it; or it could be excised.

Mass Miniature Radiography

Dr. F. M. DAY (Barnes, S.W.13) writes: It is reported that a scheme for the examination of all the Swedish population by mass miniature radiography has been submitted to the Swedish Government by the Swedish Medical Council. As soon as possible after the cessation of hostilities such a scheme should be considered for Great Britain. Although there may not be bed accommodation for all needful cases, it would be a valuable start against the war-time increase in tuberculosis, and sputum-positive cases could receive bed priority in order that the general public might be protected as far as possible from infection.

Vellore Hospital and Medical College

Dr. EDITH HUDGELL writes from 148, Harley Street, London, W.: Great changes are taking place at the Vellore Christian Medical College, South India. By order of the Madras Government, the standard of medical education is being raised from that of licensed medical practitioner to that of the M.B., B.S. In the land of purdah, the college is changing from one for Indian Christian women medical students to one where men and women will be trained together. Apart from the usual departments of a medical college and teaching hospital, the following special units are being built up: (1) rural medicine, (2) leprosy, (3) psychological medicine and mental diseases, (4) tuberculosis, (5) infectious diseases, (6) research. The buildings of Vellore Hospital and College are an example of the best type of Indian architecture. The hospital is being enlarged from one of 268 beds to one of 500 beds—to include men patients as well as women. There is already a radium and *x*-ray therapy department. The objectives for 1945 include a pathology-bacteriology block and also a physiology-pharmacology block. Additional annual income of £4,800 is required. The capital cost is £500,000 to include an endowment fund. The urgent need is for staff. Men and women are required with high qualifications in their own branch of medicine, together with good teaching ability. In addition to these qualifications, they must be Christians, spiritually fitted to lead this great venture.

Active Hyperventilation

B. S. writes: In the 1914–18 war forceful, active hyperventilation by the patient was used successfully in one hospital to reduce the patient's sensitivity to painful dressings and minor incisions. It does do so to a valuable extent, I have found in general practice. Could someone who had experience of it in that hospital recount it or refer to a published account? Haldane and Priestley stated that active hyperventilation "tends towards unconsciousness."

Oxygen via Bone-marrow?

Dr. FREDERICK VIEDGE (S. Africa) writes: Would not the bone-marrow offer a convenient site for the direct administration of oxygen gas? If this suggestion has any originality and any value I leave it to more capable hands than mine to initiate.

Rhubarb

Dr. G. V. RYAN (Dublin) writes: The leaves of rhubarb as a salad would probably be safe enough. Cooking them breaks down the fibres and releases the poison (oxalic acid) into the intestine. During the last war some people used them in the same way as they would use cabbage leaves, and there was more than one fatality.

Wolfe's Skin Grafts under Sulphanilamide Dressing

Dr. C. A. VAN ROOYEN (Ceylon) writes: I shall be glad if you will publish the following; I believe the method is original. A woman aged 50, Indian Tamil, was admitted on May 12, 1944, with a varicose ulcer of the leg, a large sloughing mass of brown material with sharply defined undermined edges. The veins were injected with quinine urethane and the ulcer became suitable for skin-graft a month later. On June 17, under $CHCl_3$, fourteen Wolfe's grafts were taken from the thigh and placed on the ulcer, which was then covered with lint smeared with vaseline containing 0.5 g. sulphapyridine and 2 g. sulphanilamide to the ounce. A firm bandage was applied over wool. On June 24 the dressings were removed. All fourteen grafts had held. A sticky yellow mucinous material covered the rest of the ulcer. Subsequent healing was uneventful. Similar dressings were applied till the fifteenth day, when growth was first noticed from the grafts and boric poultices commenced.

Wasp and Bee Stings

Capt. J. P. B. ARTHUR, R.A.M.C., writes: With regard to the recent correspondence on wasp and bee stings, I have found that a popular (and effective) remedy is the immediate application of petrol to the affected part. Recently, whilst a skin inspection was in progress, a large wasp flew past about 50 half-naked men in order to favour me, the only fully clothed man present, with his attentions. An N.C.O. immediately dabbed some petrol on the sting, and I had no further trouble with it. I was not familiar with this remedy before.

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